

Name (netid): Molly Yang (tvy2)
CS 445 - Project 2: Image Quilting

Complete the claimed points and sections below.

Total Points Claimed **[100] / 175**

Core

- | | |
|--------------------------------|-----------|
| 1. Randomly Sampled Texture | [10] / 10 |
| 2. Overlapping Patches | [20] / 20 |
| 3. Seam Finding | [20] / 20 |
| 4. Additional Quilting Results | [10] / 10 |
| 5. Texture Transfer | [30] / 30 |
| 6. Quality of results / report | [10] / 10 |

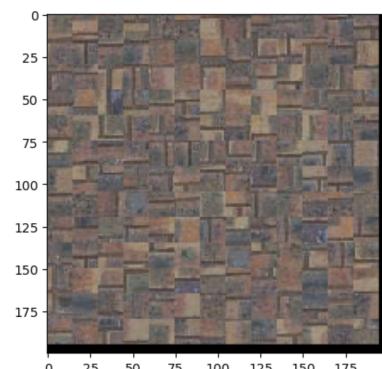
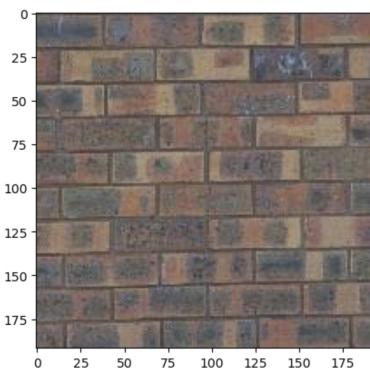
B&W

- | | |
|--------------------------------------|----------|
| 7. Iterative Texture Transfer | [0] / 15 |
| 8. Face-in-Toast Image | [0] / 20 |
| 9. Hole filling w/ priority function | [0] / 40 |

1. Randomly Sampled Texture

Include

- Sample and output images
- Parameters: patch size, output size

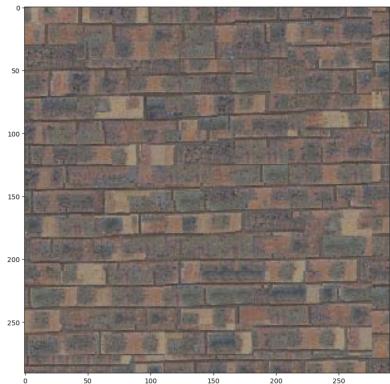


output size: 200
patch size: 15

2. Overlapping Patches

Include

- Output image for same sample as part 1
- Parameters: patch size, overlap size, tolerance

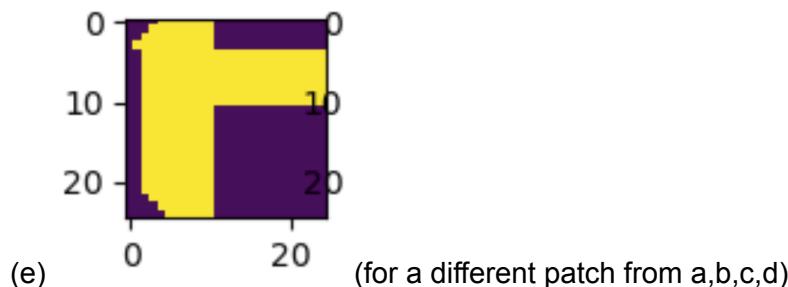
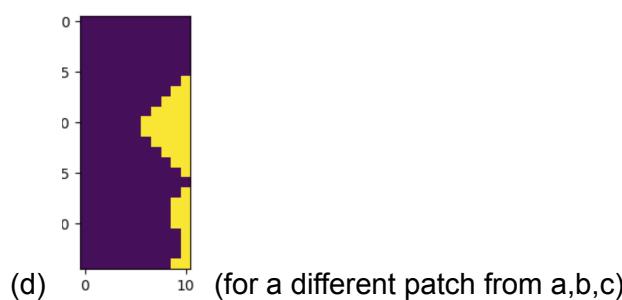
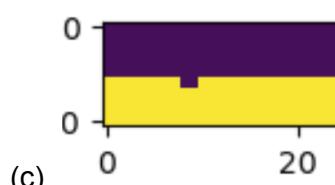
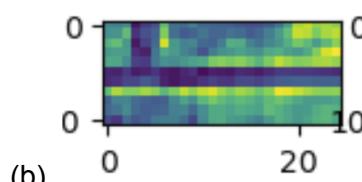
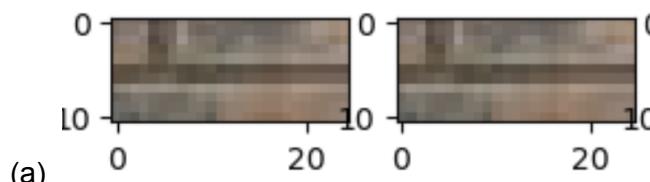


patch size: 25
overlap size: 11
tolerance: 5

3. Seam Finding

Include

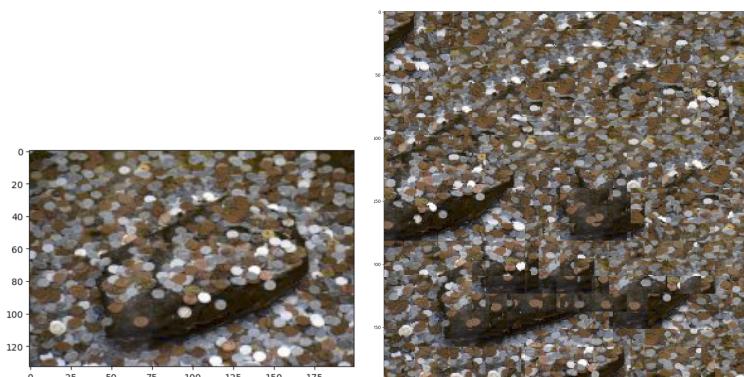
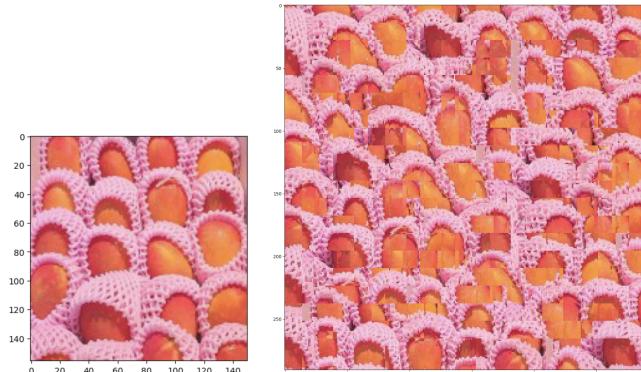
- Output image for same sample as part 1
- Illustration: for a selected patch, display (a) the two overlapping portions; (b) pixelwise SSD cost; (c) horizontal mask; (d) vertical mask; (e) combination mask. The mask is binary and tells which pixels come from which patch.
 - Note: we'll accept anything that looks like a genuine attempt to meet illustration instructions. (a) was intended to mean the two RGB patches (template and selected) that are being cut; (b) can be the SSD values of all the overlapping pixels (i.e. per-pixel SSD masked by template mask), or either one of the SSDs that you feed into cut.



4. Additional Quilting Results

Include

- At least two quilting results on your own images (excluding provided samples). Each result should show input texture image and output, and output should be more pixels than input.

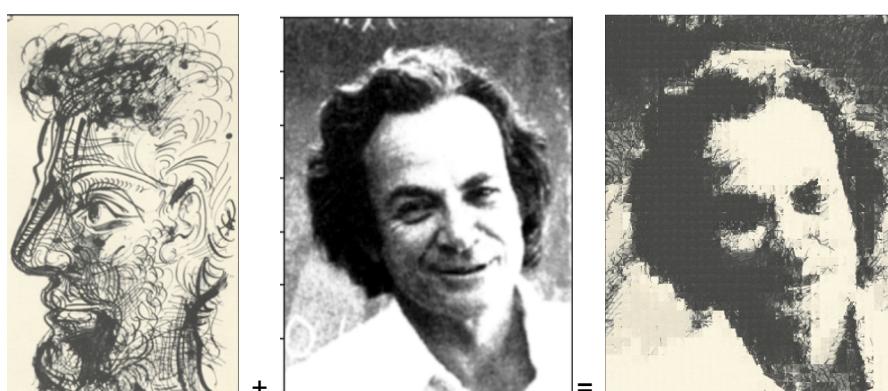


5. Texture Transfer

Include

- Brief description of texture transfer method and parameters
- At least two texture transfer results (one result can use provided samples). Include the input texture and target images and the output (output should be same size as target image)

With a texture image and a guidance image, texture transfer is done by iterating through the patches and calculating the total SSD, which is the weighted sum of two terms. SSD of the guidance image and the texture sample and the SSD of progressing output and the texture sample. From the SSD cost image, a random sample patch is selected within a given tolerance to be placed on the final output image with a given overlap.





patch_size = 25

overlap = 11

tol = 3

alpha = 0.5

6. Quality of results / report

Nothing extra to include (scoring: 0=poor 5=average 10=great).

7. Iterative Texture Transfer (B&W)

Include

- Describe method
- Results on same images as shown for texture transfer.

8. Face-in-Toast Image (B&W)

Include

- Describe method
- Show input face image, toast image, and final result

9. Hole filling w/ priority function (B&W)

Include

- Describe method
- Show result on at least two images (show input with hole and output)

Acknowledgments / Attribution

List any sources for code or images from outside sources

Project tips

<https://docs.google.com/document/d/10ImU1t8-oQhAAeV0pHLy3Oy--JzOJFWwBrSBB9qh960/edit>

Project webpage and sample images

https://courses.engr.illinois.edu/cs445/fa2023/projects/quilting/ComputationalPhotography_ProjectQuilting.html

Gray yarn image

http://antiquityoaks.blogspot.com/2009_09_01_archive.html