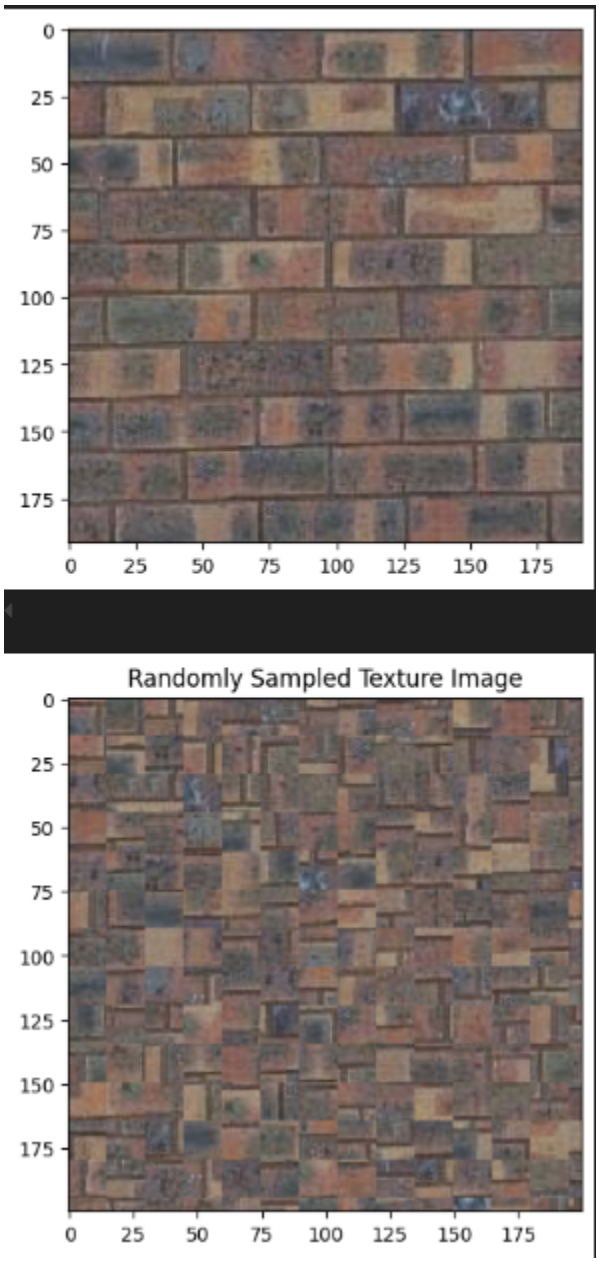
Kayson Ijisesan (tijis2)
CS 445 - Project 2: Image Quilting

1. Randomly Sampled Texture

Include

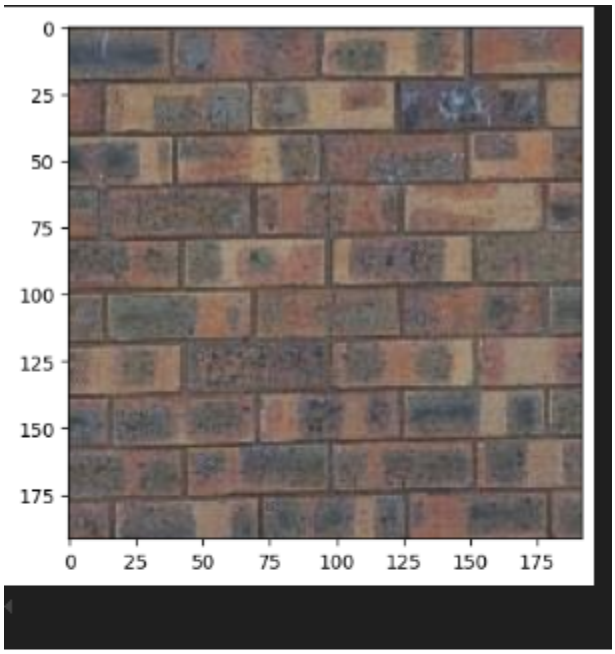
- Sample and output images

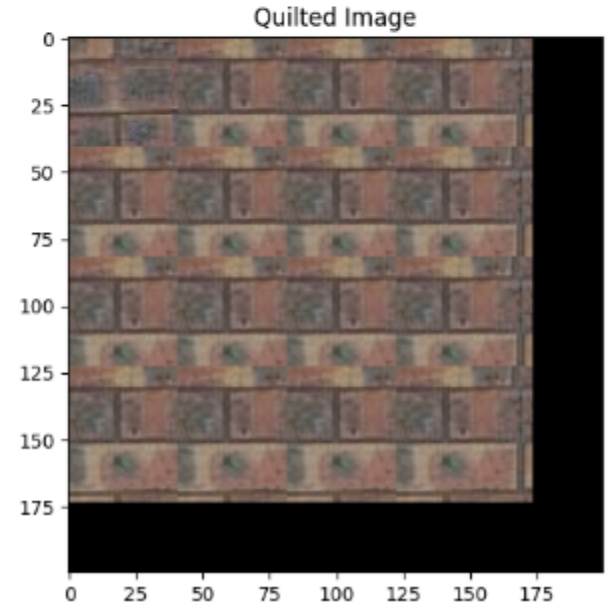


- Parameters:
    - Patch size = 15
    - Output size = 200

2. Overlapping Patches

- Output image for same sample as part 1



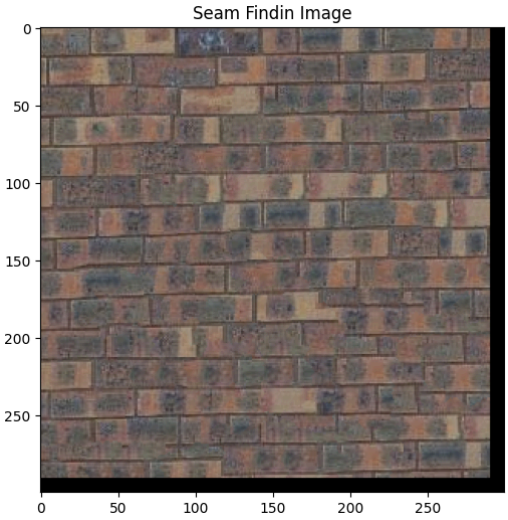


- Parameters:
  - Patch size = 51
  - Overlap size = 10
  - Tolerance = 4

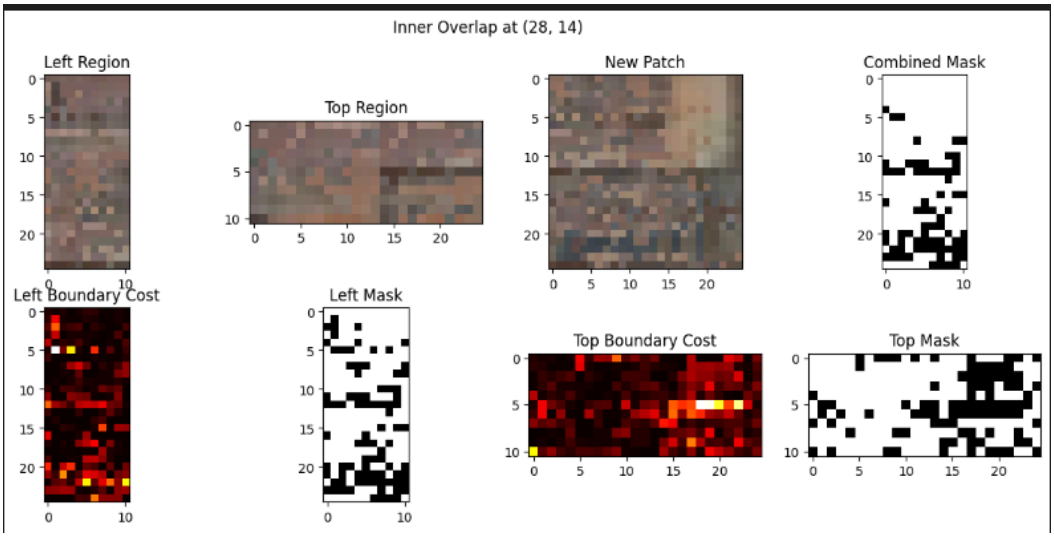
3. Seam Finding

Include

- Output image for same sample as part 1

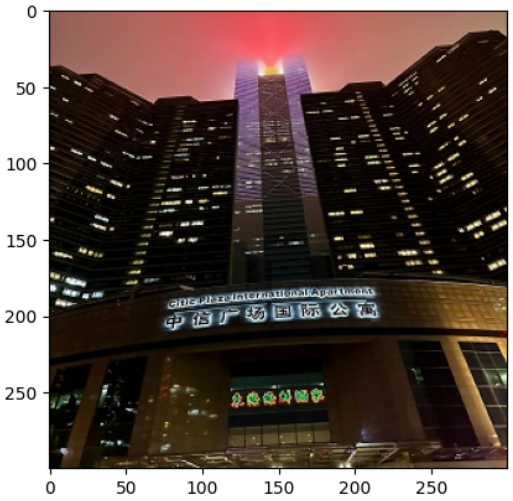


- Illustration:

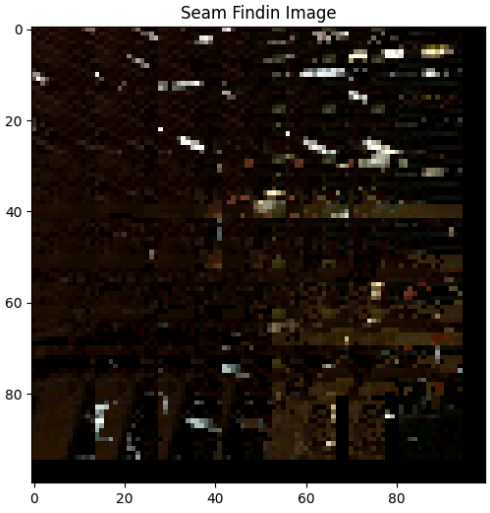


4. Additional Quilting Results

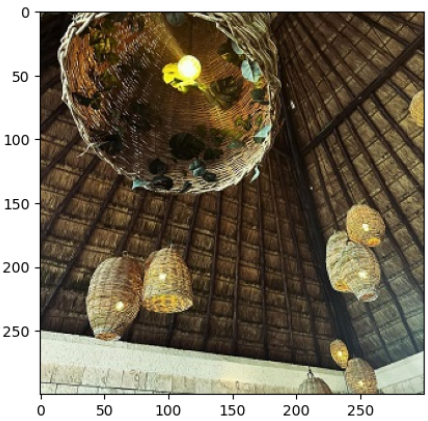
- Input Texture Image



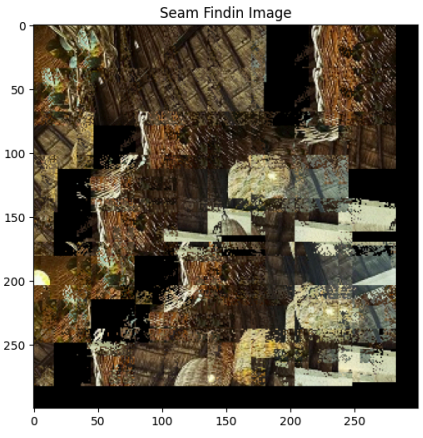
- Output



- Input Texture Image

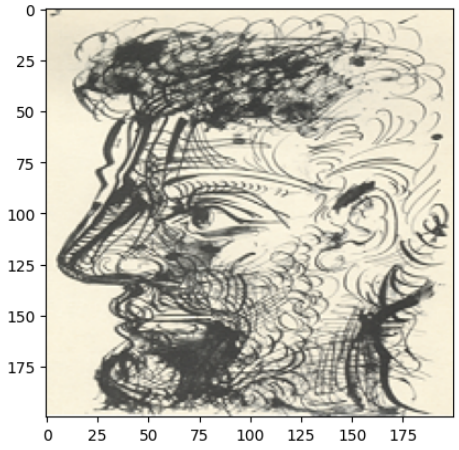


- Output

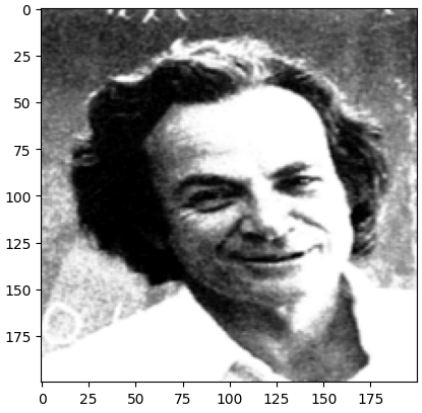
- 

5. Texture Transfer

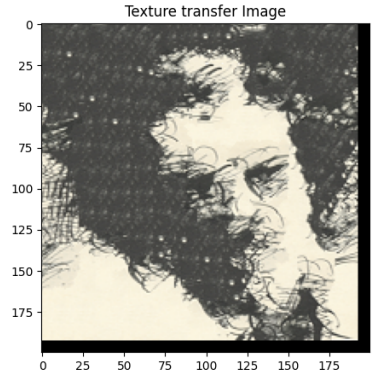
Include

- Texture transfer is a technique that adjusts an image synthesis process to create a textured output that keeps both the source texture properties and the guidance picture's patterns. To do this you must use texture consistency, where the output is a synthesis of the source texture, and synthesized patches match a spatial map given by the target picture This is done by adjusting the error term to be a combination of the patch overlap and correspondence errors. The weighting parameter, alpha (α), balances keeping the source texture while also keeping the guidance image's structure.
- Texture transfer 1
  - Input texture
  - 

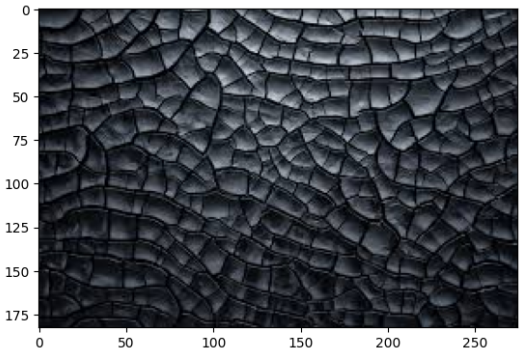
  - Target image



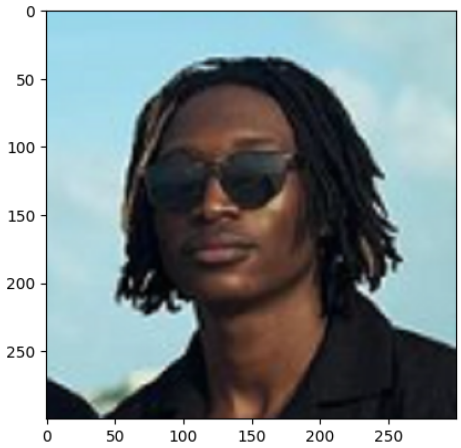
- Output



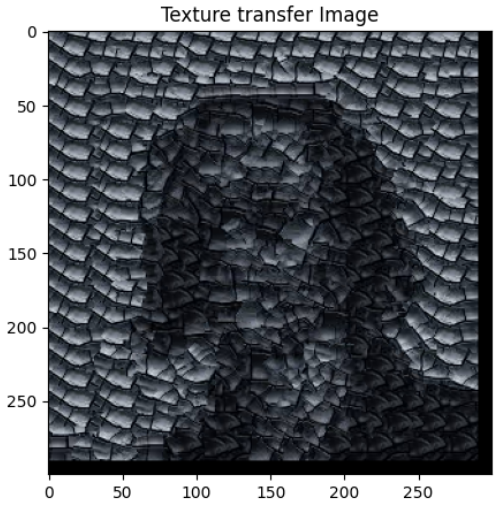
- Texture transfer 2
  - Input texture



  - Target image



- Output



Acknowledgments / Attribution

StackOverflow - randomly sampling
https://stackoverflow.com/questions/43192950/how-do-i-randomly-sample-from-a-list-in-python-while-maintaining-the-distributio

Lecture 7 PDF - Growing: Texture synthesis and hole filling
https://yxw.cs.illinois.edu/course/CS445/Content/lectures/Lecture%2007%20-%20Texture%20Synthesis%20-%20Online.pdf

Lecture 8 PDF - Cutting: Intelligent Scissors and Graph Cuts

https://yxw.cs.illinois.edu/course/CS445/Content/lectures/Lecture%2008%20-%20Graphs%20and%20Cutting%20Images%20-%20Online.pdf

Lecture 9 PDF - Pasting: Compositing and blending
https://yxw.cs.illinois.edu/course/CS445/Content/lectures/Lecture%2009%20-%20Blending%20and%20Compositing%20-%20Online.pdf

Lecture 10 PDF - Image warping (translation, rotation, scale, etc.)
https://yxw.cs.illinois.edu/course/CS445/Content/lectures/Lecture%2010%20-%20Image%20Warping%20-%20Online.pdf

Debugging or Bounds Setting
ChatGPT

SIGGRAPH 2001 paper by Efros and Freeman
https://people.eecs.berkeley.edu/~efros/research/quilting/quilting.pdf