24-678: Computer Vision for Engineers
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PS4 Report
Due: Oct 6 2023

This file contains the following:
PS4-1 Image Mosaicing with Bi-linear Transformation

- pittsburgh-stitched.png
- wall-stitched.png
- house-stitched.png
- door-stitched.png
- readme.txt
- source code file(s) (attached to the end)

Findings and discussion:

We are tasked to stitch 3 given images into one combined image using mosaicking and bi-linear transformation. The functioning demo code was given but some minor edits were made to suit our project's needs.

In my program, the user is asked to select 4 points from the right image, 4 points from the left image, and 8 points from the center image to declare the image stitching criteria. The script generates a combined image using the user-selected points. The resulting output image may vary from user-defined points, but the overall rendering is sufficient for our use case.

PS4-1 Pittsburgh stitched image

Figure 1. The given Pittsburgh images (left, center, right).

Figure 2. The stitched Pittsburgh image.

Right picked points' coordinates: **[860, 513], [596, 446], [528, 700], [698, 835]**
Center-right picked points' coordinates: **[764, 146], [576, 148], [575, 332], [714, 392]**
Left picked points' coordinates: **[854, 332], [795, 673], [682, 528], [728, 268]**
Center-left picked points' coordinates: **[247, 145], [115, 443], [48, 286], [148, 56]**

PS4-1 Wall stitched image

Figure 3. The given wall images (left, center, right).

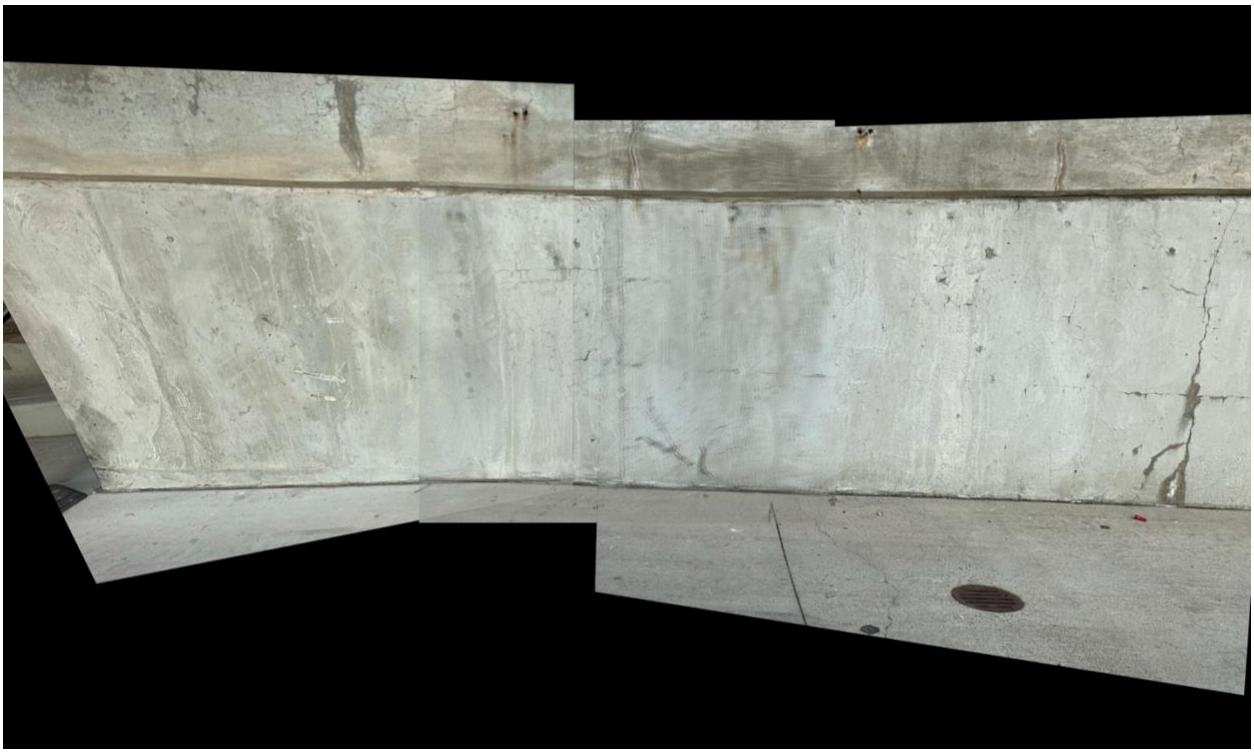

Figure 4. The stitched wall image.

Right image picked points' coordinates: **[514, 231], [559, 1105], [350, 1122], [394, 231]**
Center-right image picked points' coordinates: **[814, 199], [825, 867], [666, 862], [721, 199]**
Left image picked points' coordinates: **[899, 200], [984, 881], [899, 868], [821, 196]**
Center-left image picked points' coordinates: **[101, 180], [226, 843], [154, 846], [13, 177]**

PS4-1 House stitched image

Figure 5. The given house images (left, center, right).

Figure 6. The stitched house image.

Right picked points' coordinates: **[740, 392], [701, 816], [568, 825], [597, 441]**
Center-right picked points' coordinates: **[1366, 199], [1358, 606], [1237, 612], [1215, 269]**
Left picked points' coordinates: **[1082, 505], [1057, 765], [983, 759], [991, 463]**
Center-left picked points' coordinates: **[201, 291], [160, 514], [84, 509], [115, 245]**

PS4-1 Door stitched image

Figure 7. The given door images (left, center, right)

Figure 8. The stitched door image.

Right picked points' coordinates: **[530, 243], [504, 1013], [103, 1069], [148, 138]**
Center-right picked points' coordinates: **[1361, 209], [1382, 985], [1036, 985], [1035, 176]**
Left picked points' coordinates: **[1751, 131], [1702, 1053], [1437, 1035], [1416, 169]**
Center-left picked points' coordinates: **[1031, 181], [975, 989], [758, 998], [767, 177]**

PS4-1 readme.txt

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Operating system: macOS Ventura 13.5.2
IDE you used to write and run your code: PyCharm 2023.1.4 (Community Edition)
The number of hours you spent to finish this problem: 8 hours.