

Complete the claimed points and sections below.

Total Points Claimed [55] / 250

Core

- 1. Stitch two key frames [20] / 20
- 2. Panorama using five key frames [15] / 15
- 3. Map the video to the reference plane [15] / 15
- 4. Create background panorama [] / 15
- 5. Create background movie [] / 10
- 6. Create foreground movie [] / 15
- 7. Quality of results and report [5] / 10

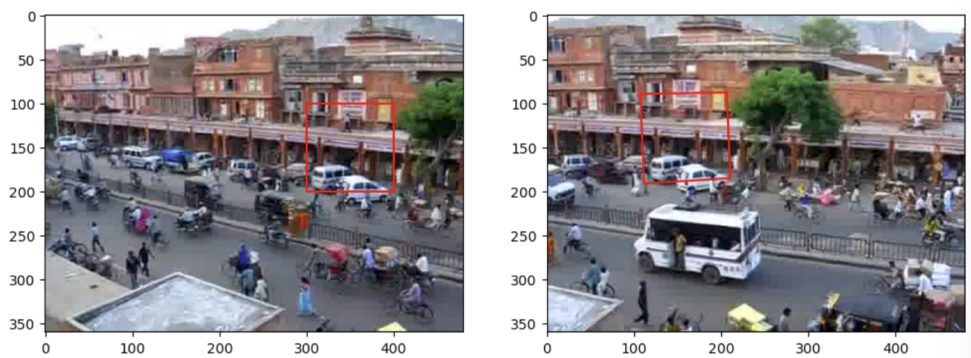
B&W

- 8. Insert unexpected object [] / 15
- 9. Process your own video [] / 20
- 10. Smooth blending [] / 30
- 11. Improved fg/bg videos [] / 40
- 12. Generate a wide video [] / 10
- 13. Remove camera shake [] / 20
- 14. Make streets more crowded [] / 15

1. Stitch two key frames

Include

- Display of image frames 270 and 450 with the red plot lines showing corresponding regions



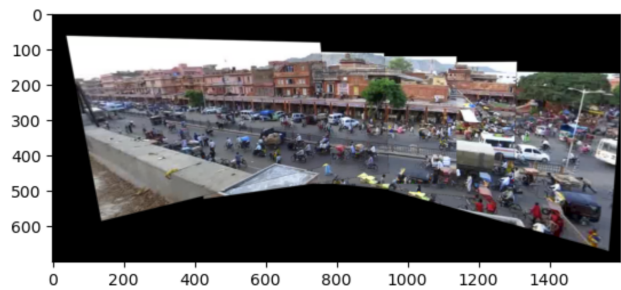
- Printout of 3x3 homography matrix normalized so that the largest value is 1

[[-4.86832564e-03 -2.07296599e-04 1.00000000e+00]
[-8.58628377e-05 -4.58958889e-03 8.24328898e-02]
[-1.94861307e-06 -6.34314244e-08 -3.90942615e-03]]



2. Panorama using five key frames

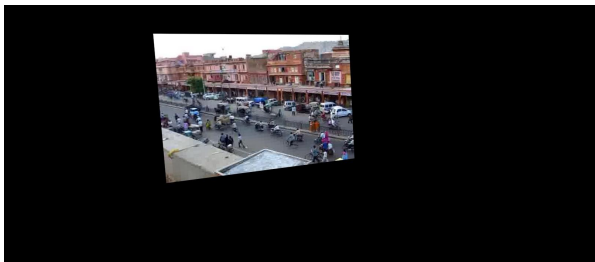
Include your panoramic image



3. Map the video to the reference plane

Include:

- Link to your video
https://mediaspace.illinois.edu/media/t/1_7yahhfbm
- Display frame 200 of your video



- Briefly explain how you solved for the transformation between each frame and the reference frame
Four major sections far left, left, right and far right are equally divided from the 900 frames. For each frame, homographies were computed relative to the reference frame at 225, 450, 450, and 675 for each section respectively. Far left and left sections used the upper bound as reference from the current indexes to 225 and 450. Right and far right used the lower bound as reference starting from 450 and 675.

4. Create the background panorama

Include:

- Picture of the background panorama
- Explain your method of computing the background color of a pixel

5. Create the background movie

Include:

- Link to your video
- Display frame 200 of your video

6. Create the foreground movie

Include:

- Link to your video
- Display frame 200 of your video

7. Quality of results / report

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

8. Insert unexpected object

Include link to your video.

9. Process your own video

Include:

- Background image
- Link to background video
- Link to foreground video

10. Smooth blending

Include panoramic image from part 2 with better blending

11. Smooth blending

Include panoramic image from part 2 with better blending

12. Generate a wide video

Include link to your video

13. Remove camera shake

Include link to your stabilized video

14. Make street more crowded

Include link to your video

Acknowledgments / Attribution

List any sources for code or images from outside sources

Project description and video

https://courses.engr.illinois.edu/cs445/fa2023/projects/video/ComputationalPhotograph_ProjectVideo.html

Project tips

https://docs.google.com/document/d/1EvXdceDHNJNkrkgFOU9eZMMHVugB9lYK1Lh_oC4nl5k/edit

ijcv2007 paper

Week 10 lectures and slides