

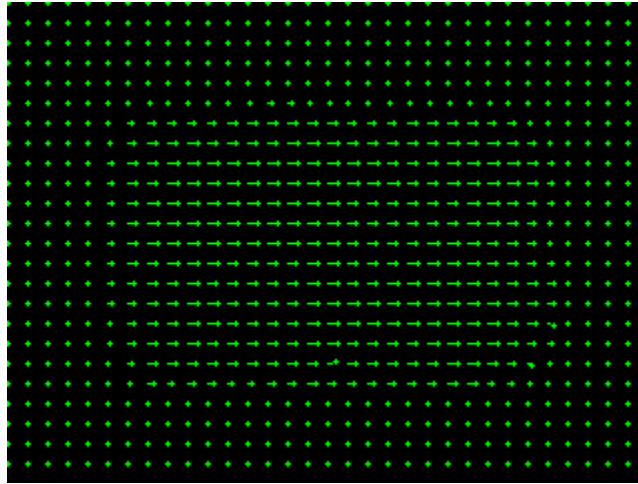
Computer Vision

Fall 2017

Problem Set #4

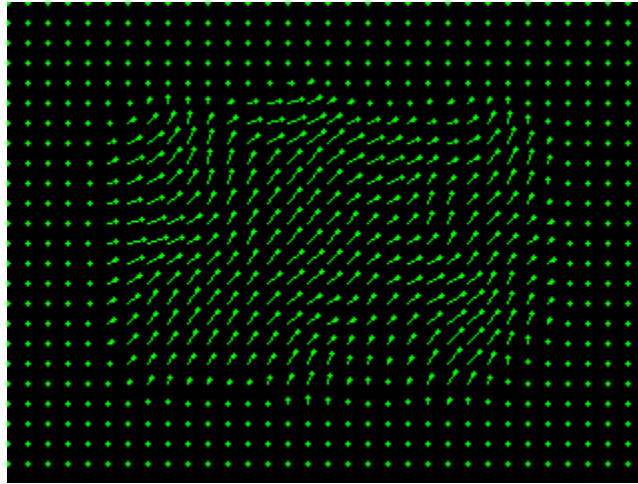
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1a: Base Shift0 and ShiftR2



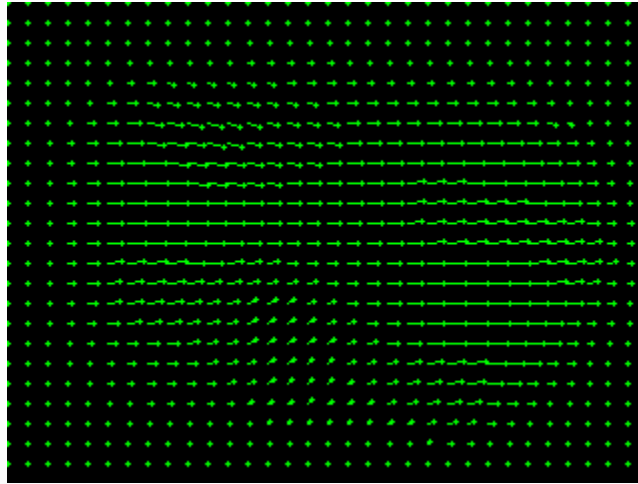
ps4-1-a-1.png

1a: Base Shift0 and ShiftR5U5



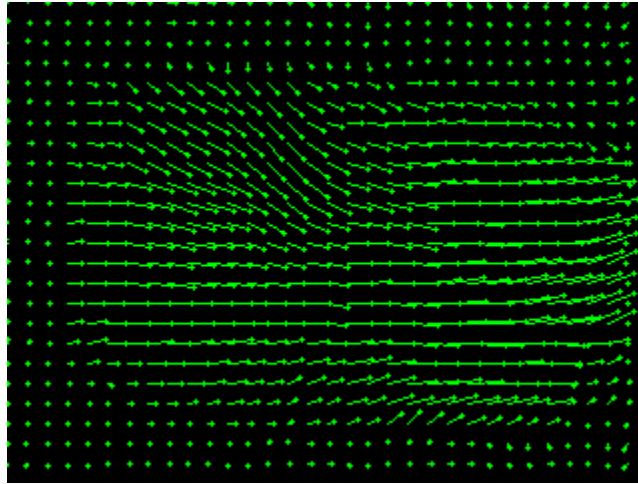
ps4-1-a-2.png

1b: Base Shift0 and ShiftR10



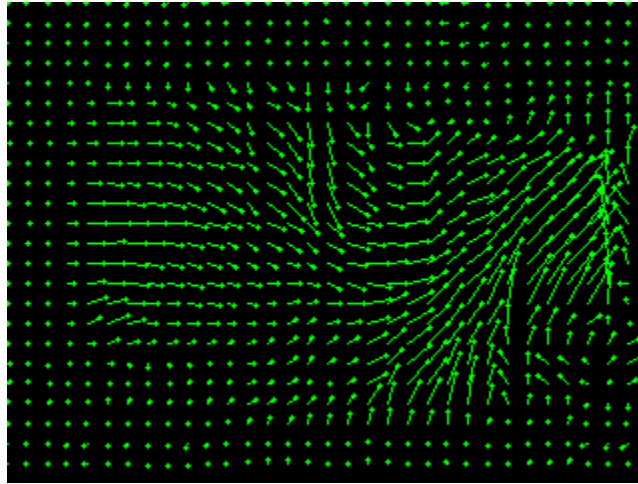
ps4-1-b-1.png

1b: Base Shift0 and ShiftR20



ps4-1-b-2.png

1b: Base Shift0 and ShiftR40

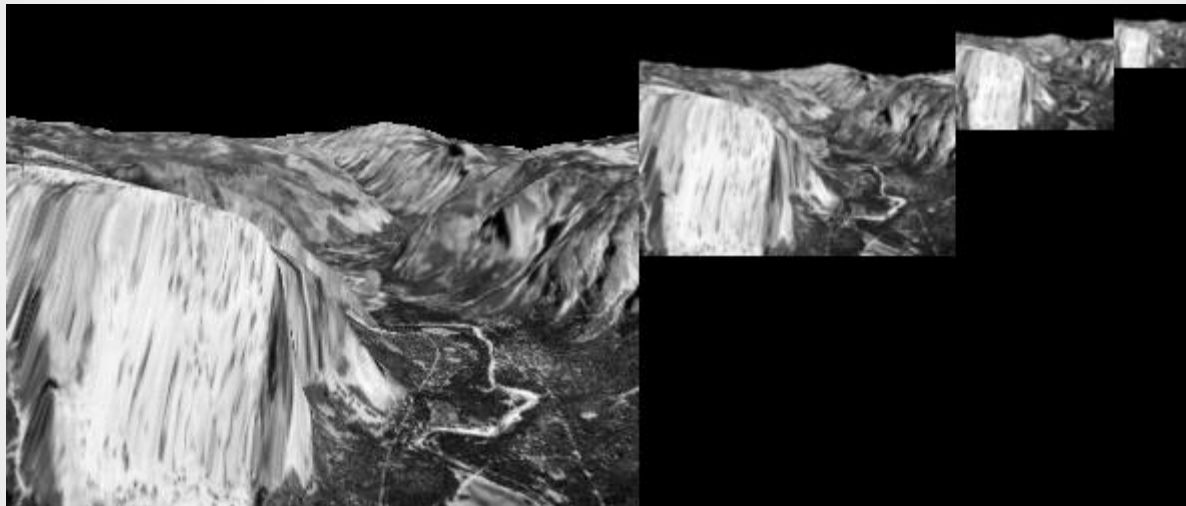


ps4-1-b-3.png

1b: Text Response

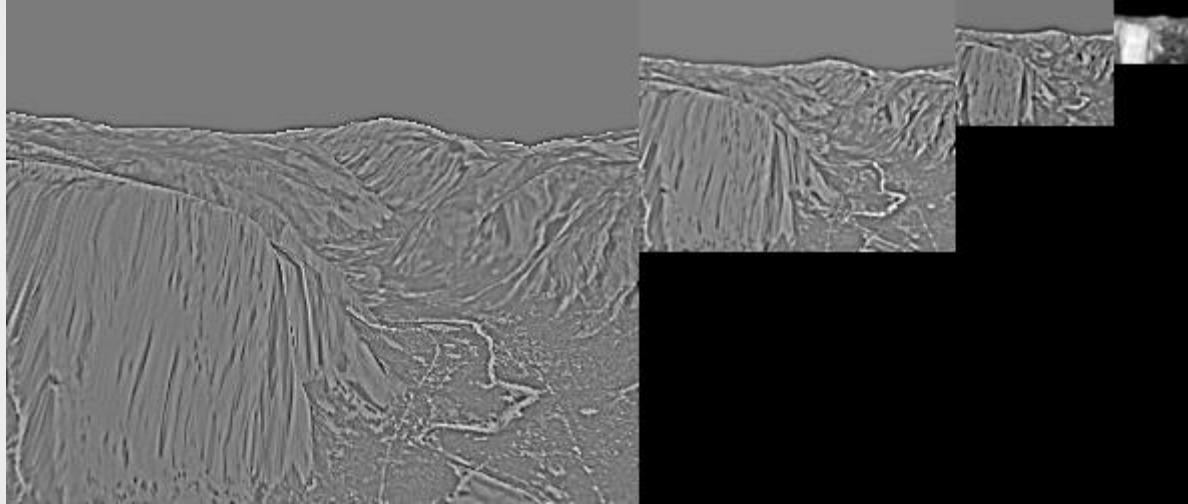
- Does LK still work? Does it fall apart on any of the pairs? Try using different parameters to get results closer to the ones above. Describe your results and what you tried.
- LK doesn't work well, yes, it falls apart on the pairs of "shift0, shiftR20", and "shift0, shiftR40". What I did is to apply additional smoothing on input images before apply the LK, I used a gaussian smoothing with kernel size "17*17" and sigma "14", and I also adjust the kernel size in the LK, basically, giving relative large kernel size, which allows me to see the arrows.

2a: Gaussian Pyramid



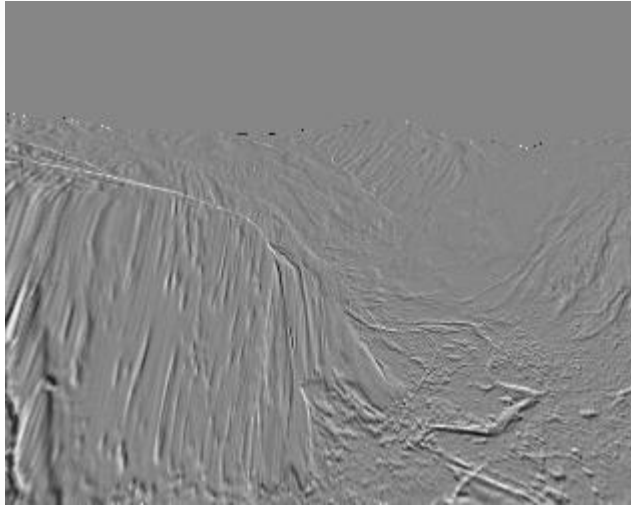
ps4-2-a-1.png

2b: Laplacian Pyramid



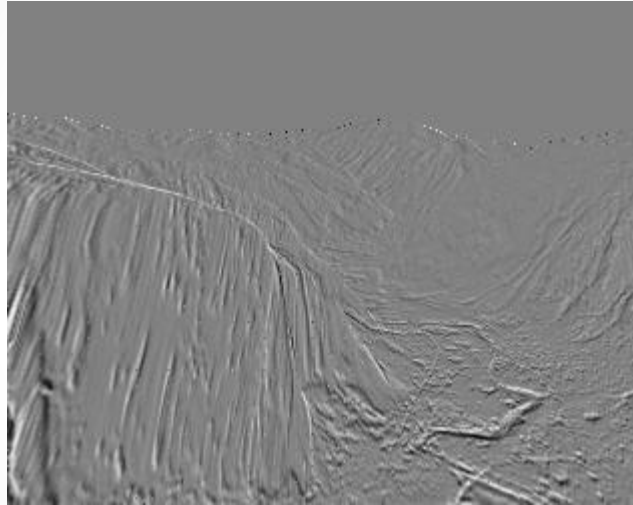
Laplacian Pyramid Image - **ps4-2-b-1.png**

3a: Difference images



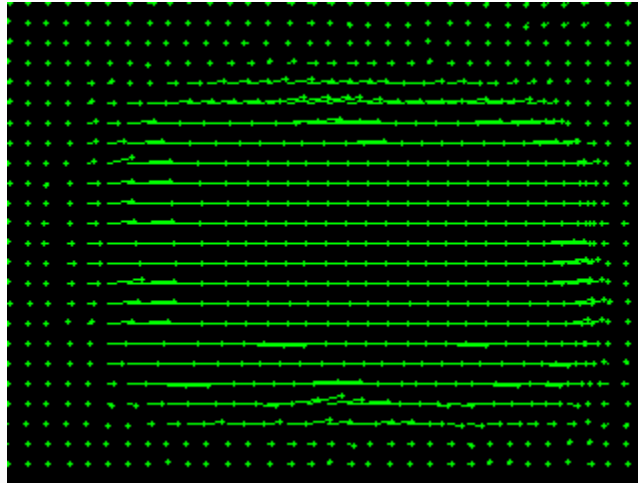
ps4-3-a-1.png

3a: Difference images (cont.)



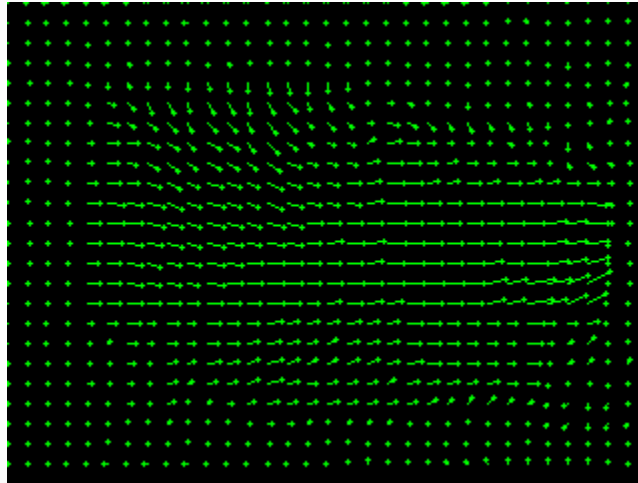
ps4-3-a-2.png

4a: Hierarchical LK



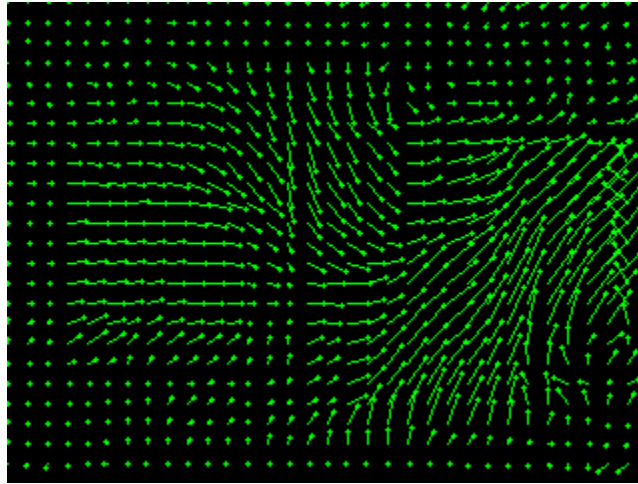
ps4-4-a-1.png

4a: Hierarchical LK (cont.)



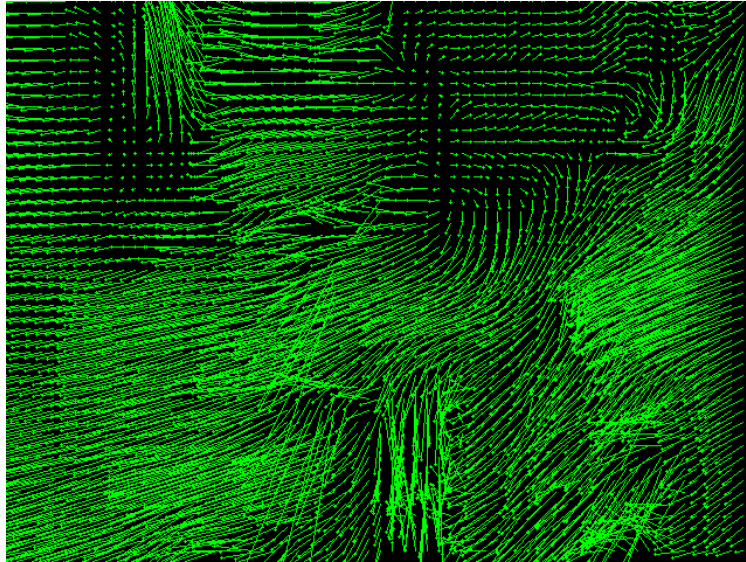
ps4-4-a-2.png

4a: Hierarchical LK (cont.)



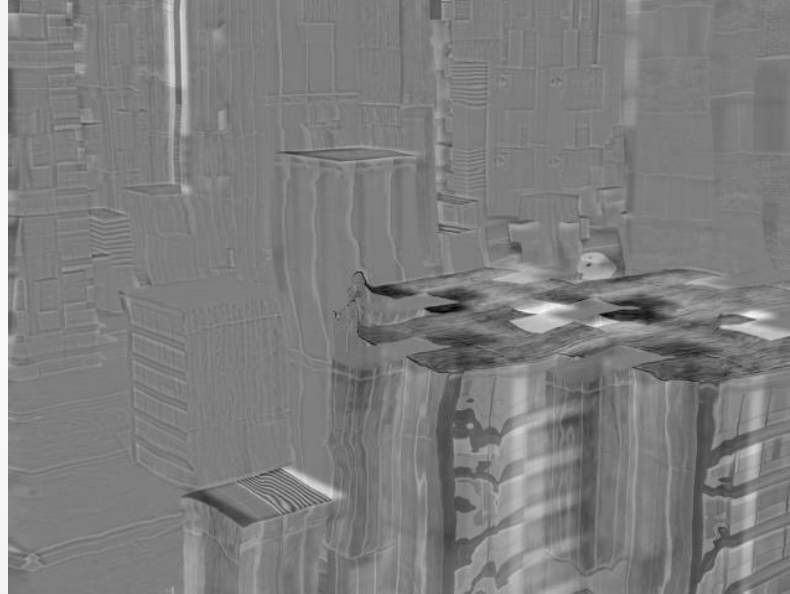
ps4-4-a-3.png

4b: Hierarchical LK (cont.)



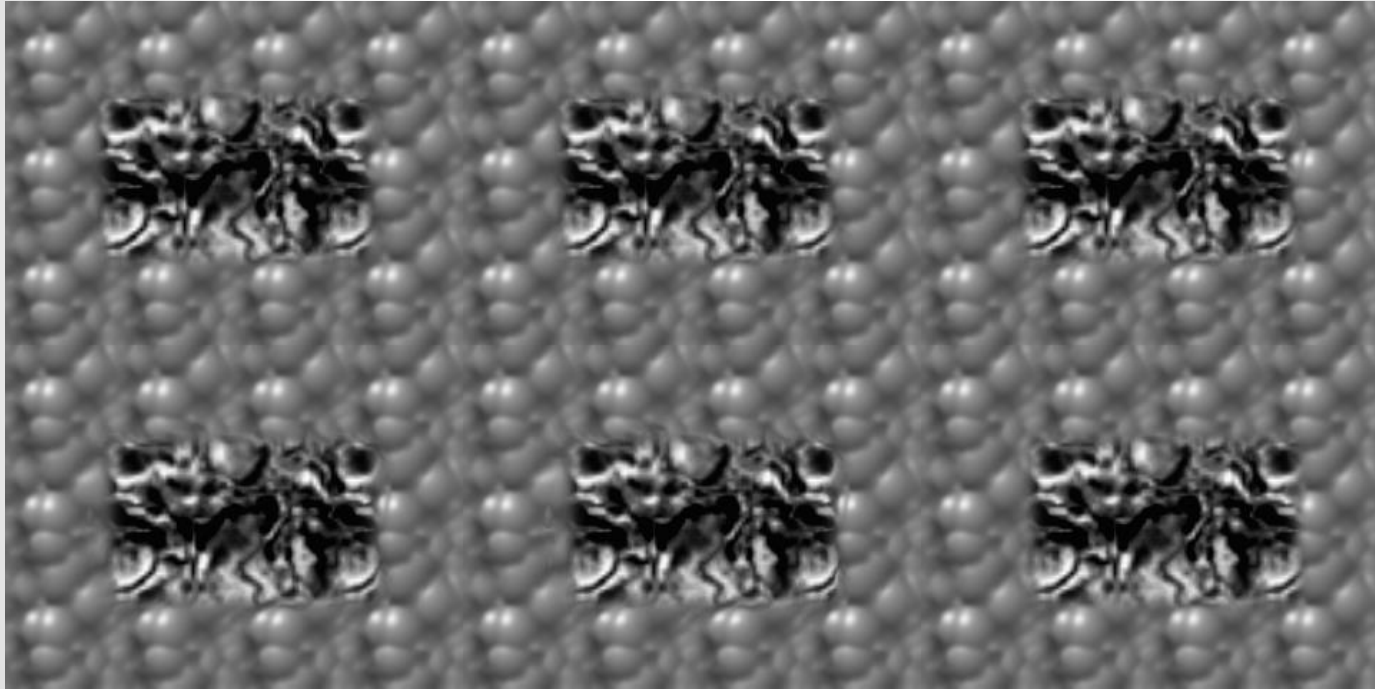
ps4-4-b-1.png

4b: Hierarchical LK (cont.)



ps4-4-b-2.png

5a: Frame Interpolation



ps4-5-a-1.png

5b: Frame Interpolation



ps4-5-b-1.png

5b: Frame Interpolation



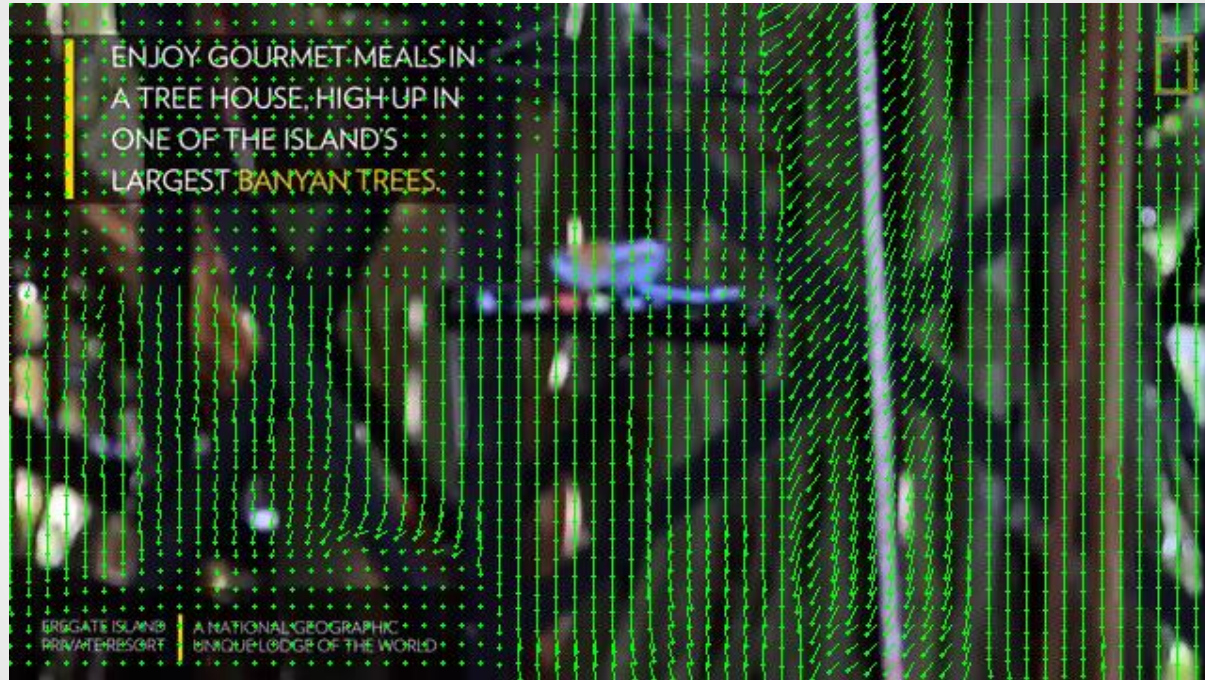
ps4-5-b-2.png

6: Challenge Problem



ps4-6-a-1.png

6: Challenge Problem (cont.)



ps4-6-a-2.png

6: Challenge Problem (cont.)

<https://youtu.be/wm6CaBrocDU>

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Verify that all images are still visible for grading.