Computer Vision
Fall 2017
Problem Set #4

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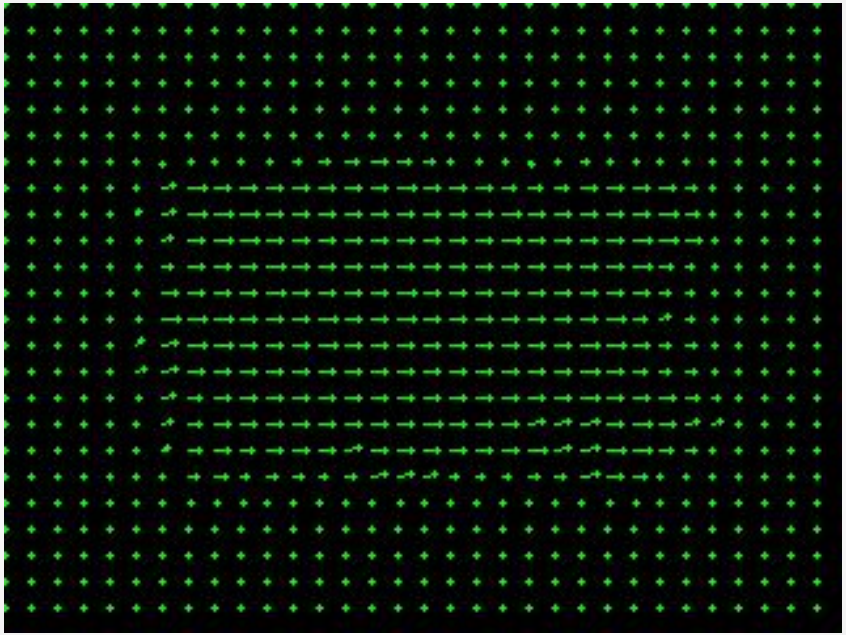
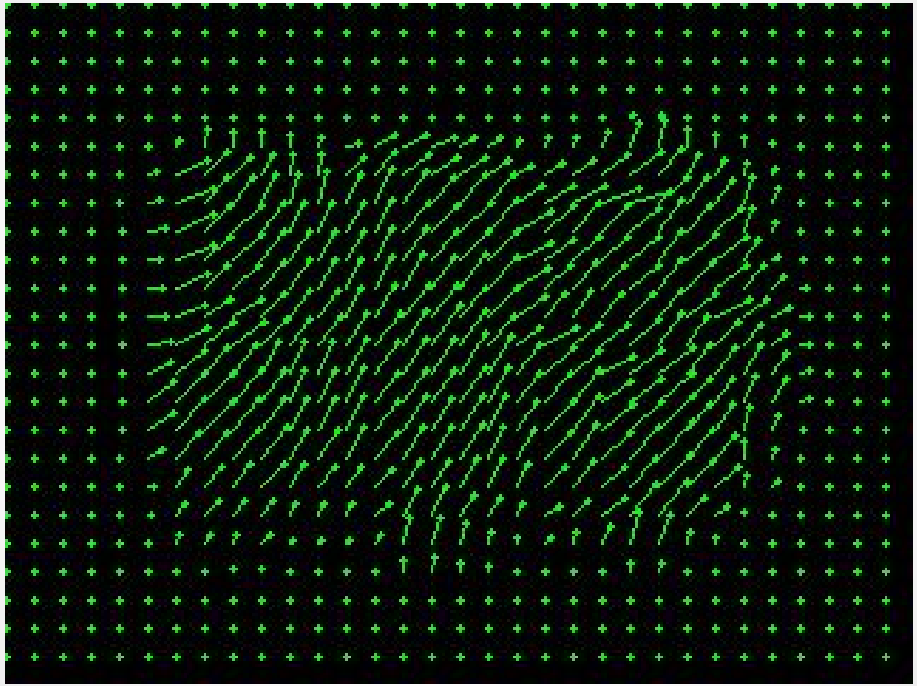
1a: Base Shift0 and ShiftR2



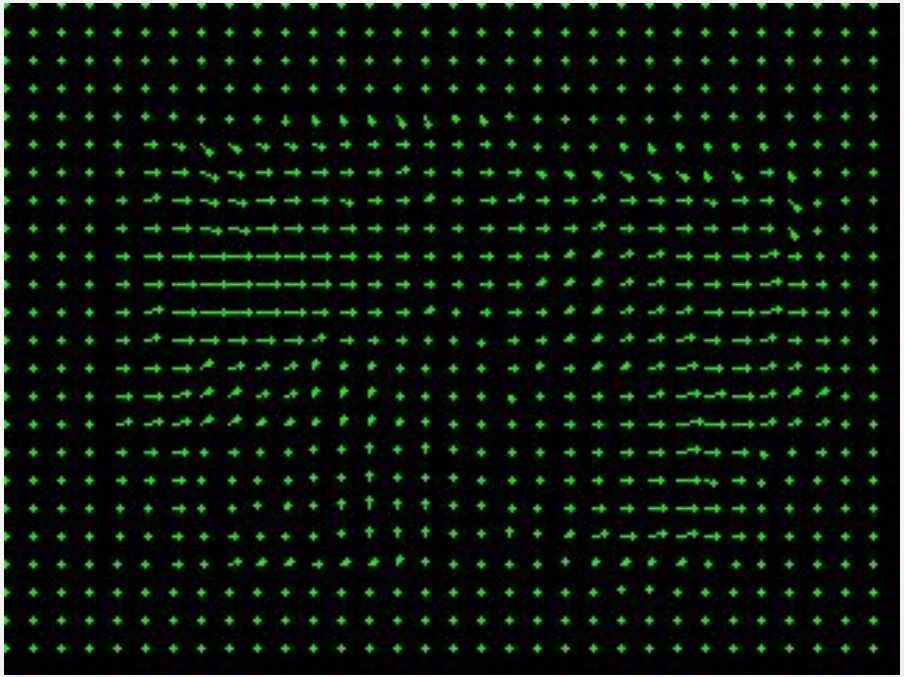
ps4-1-a-1.png

1a: Base Shift0 and ShiftR5U5



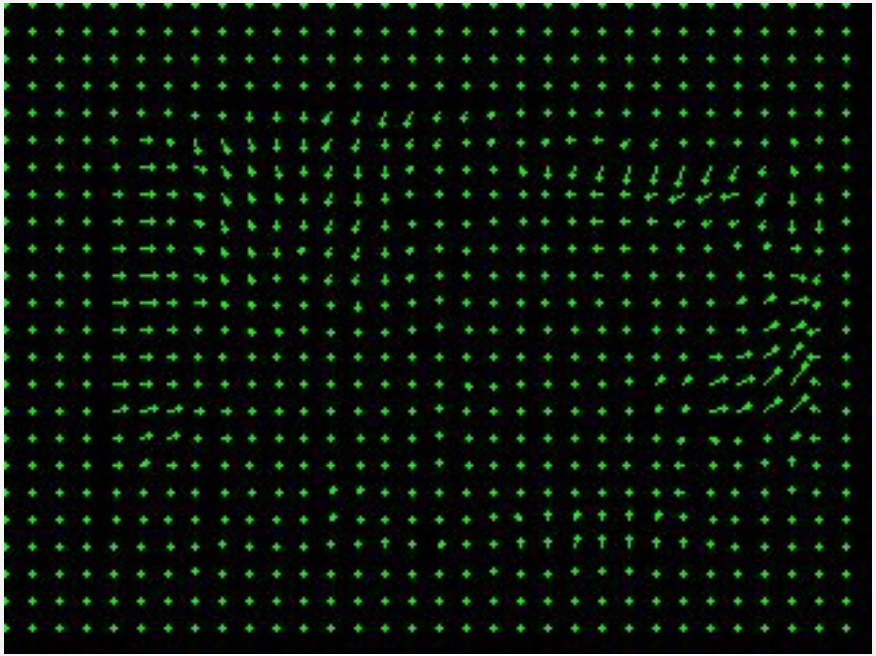
ps4-1-a-2.png

1b: Base Shift0 and ShiftR10



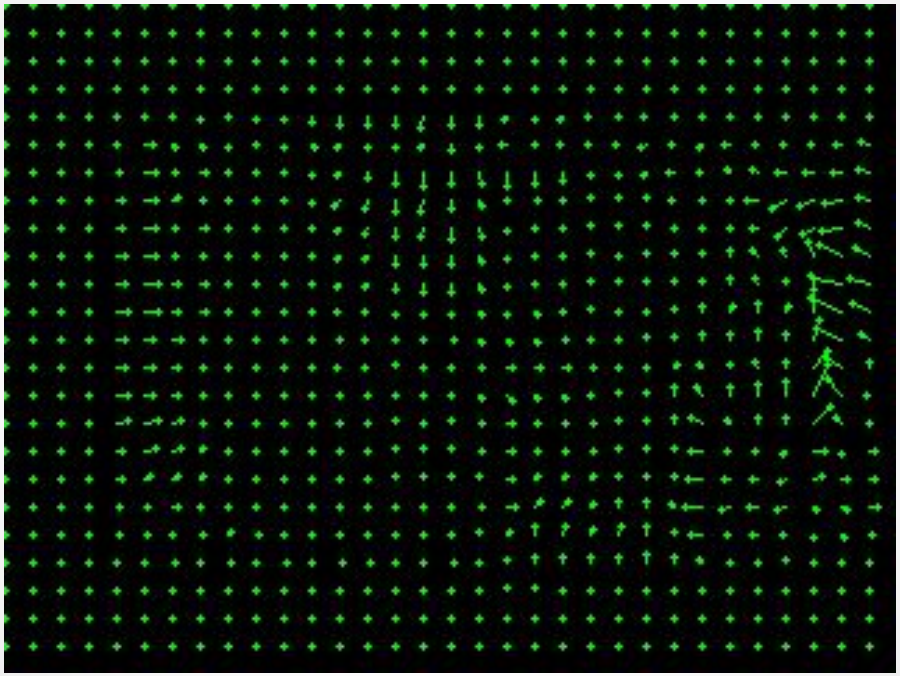
ps4-1-b-1.png

1b: Base Shift0 and ShiftR20



ps4-1-b-2.png

1b: Base Shift0 and ShiftR40

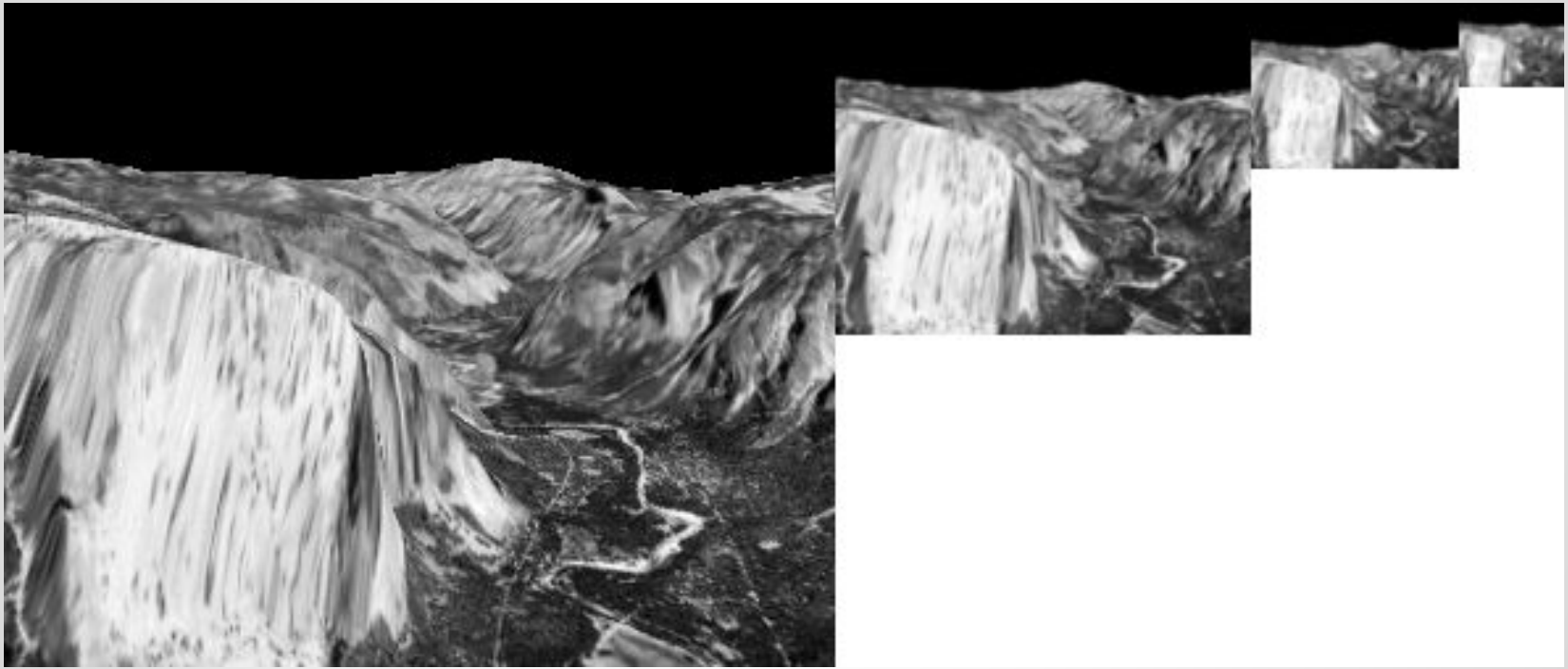


ps4-1-b-3.png

1b: Text Response

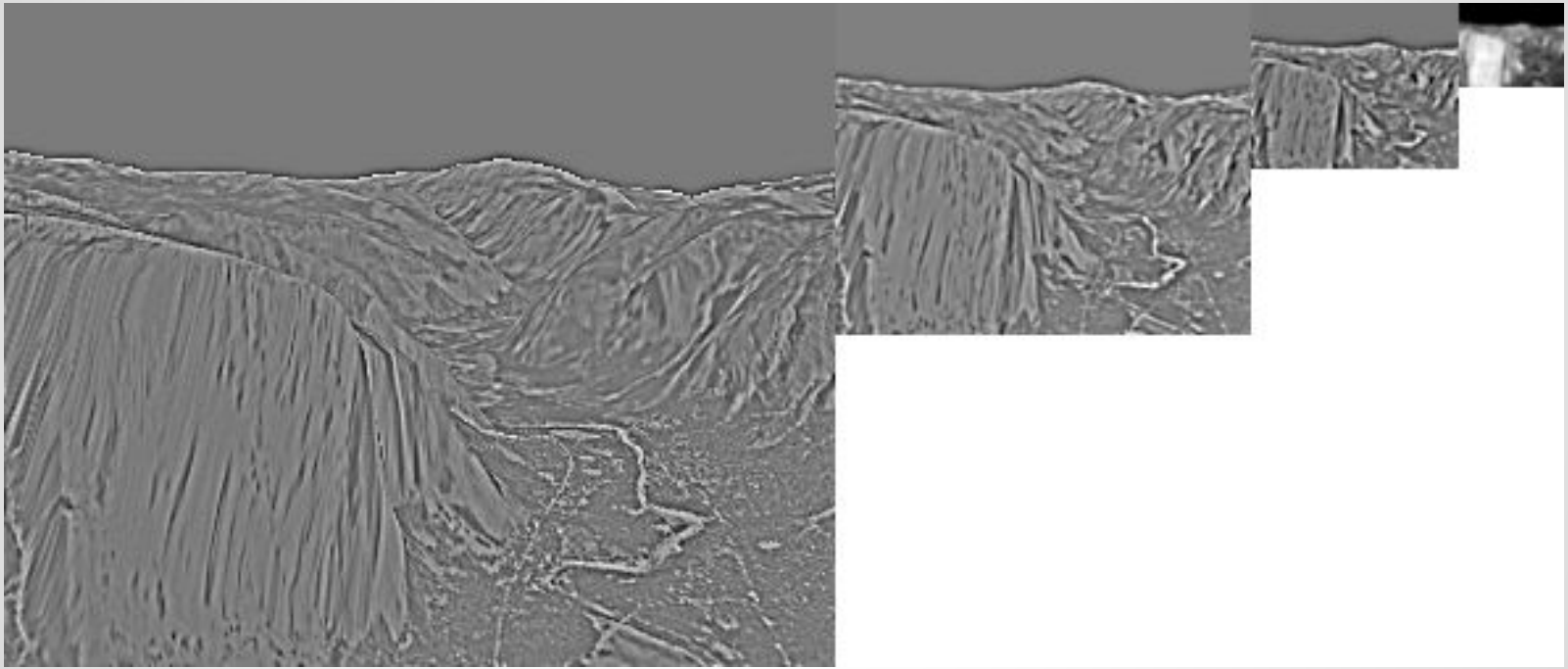
- After tuning the parameters I was able to get slightly better results, but no results that were exceptional.. It tended to fall apart more quickly the further the shifts got (r20, r40..). Even for those larger shift images, changing parameters did not help much to improve the optic flow generated. I think that it is important to note, that these are the expected results as the assumption (Taylor expansion) only holds for small shifts.

2a: Gaussian Pyramid



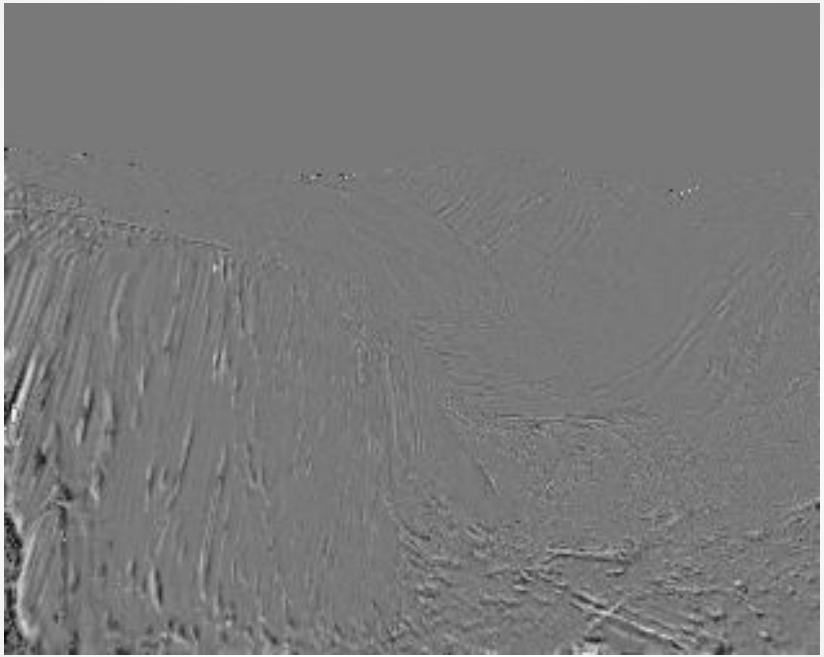
ps4-2-a-1.png

2b: Laplacian Pyramid



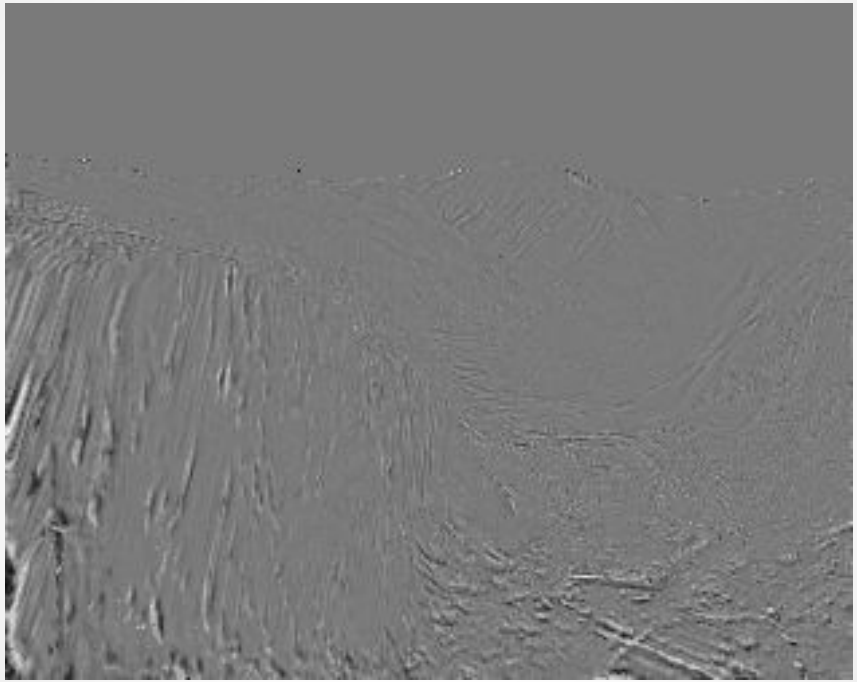
Laplacian Pyramid Image - **ps4-2-b-1.png**

3a: Difference images



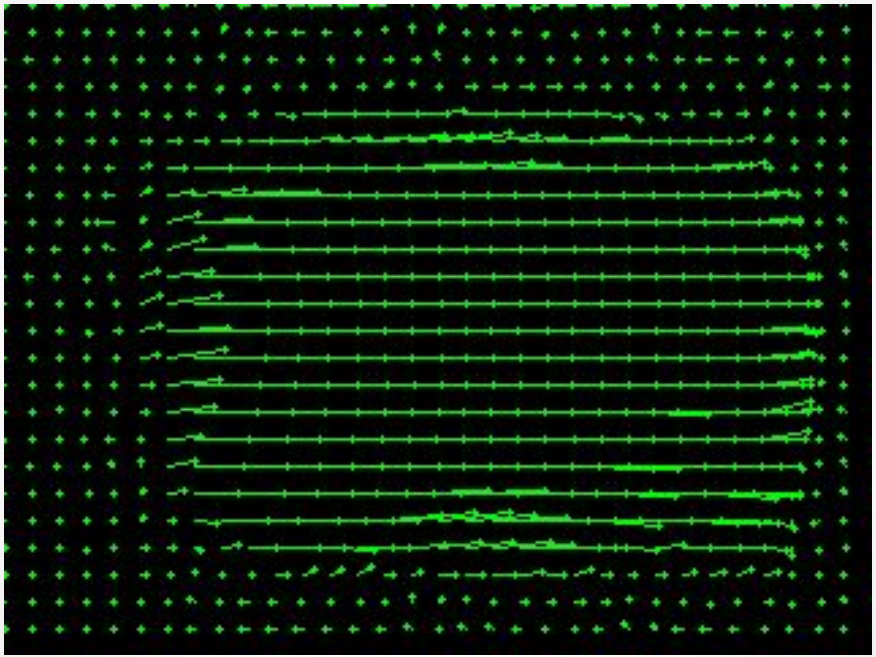
ps4-3-a-1.png

3a: Difference images (cont.)



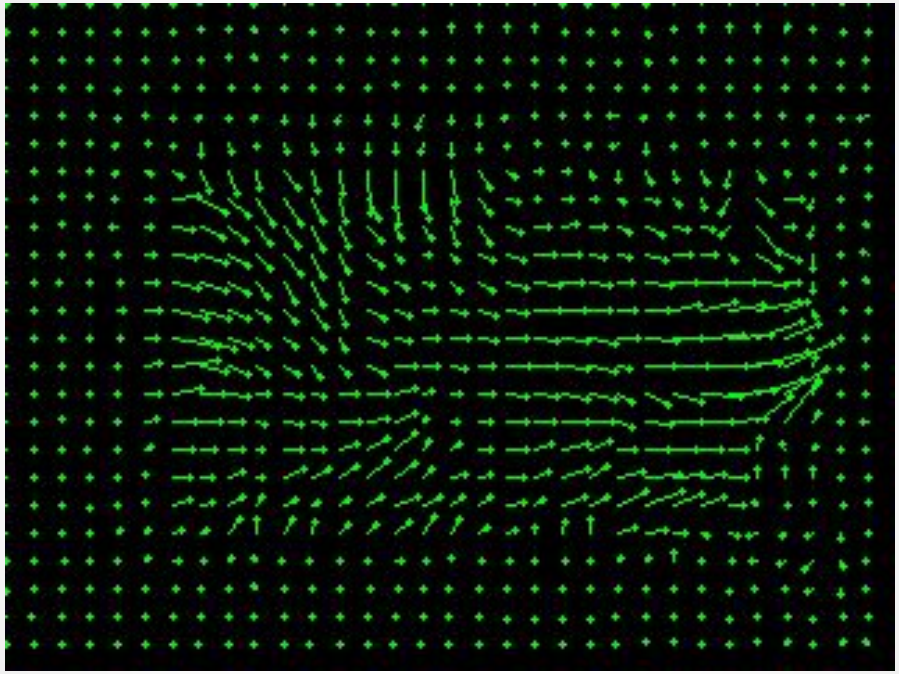
ps4-3-a-2.png

4a: Hierarchical LK



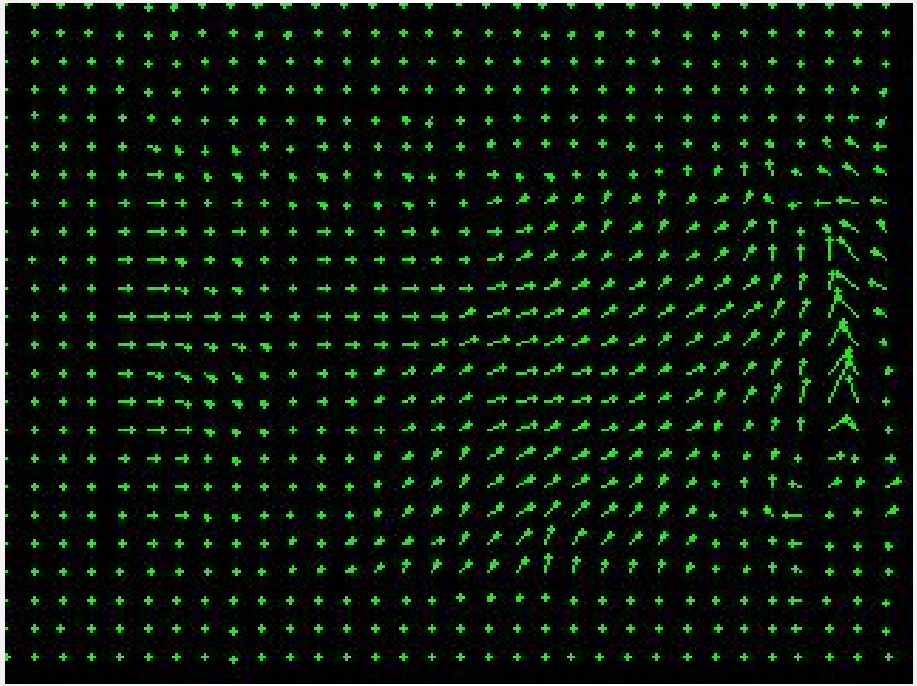
ps4-4-a-1.png

4a: Hierarchical LK (cont.)



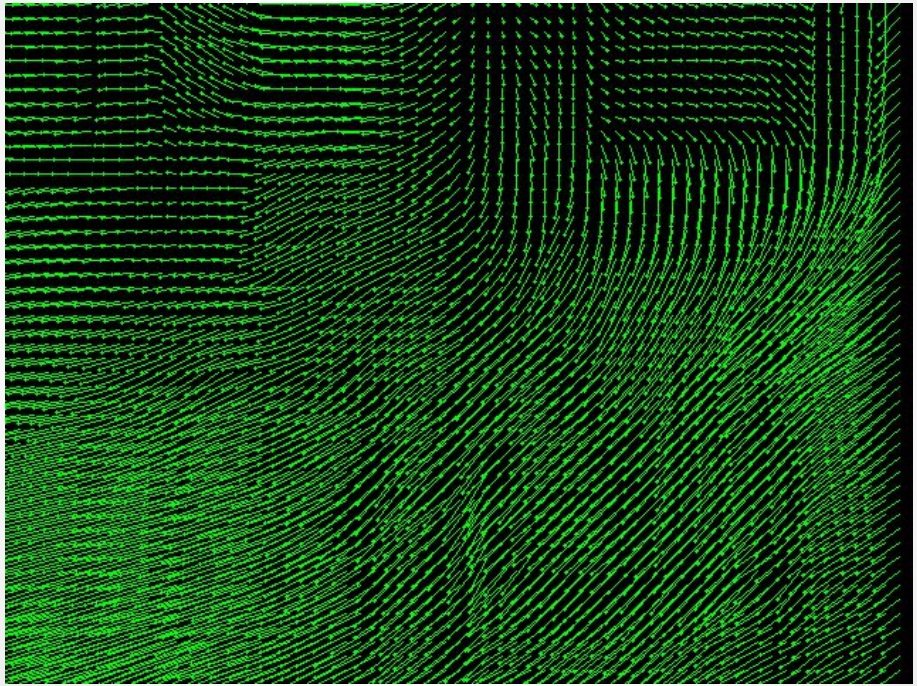
ps4-4-a-2.png

4a: Hierarchical LK (cont.)



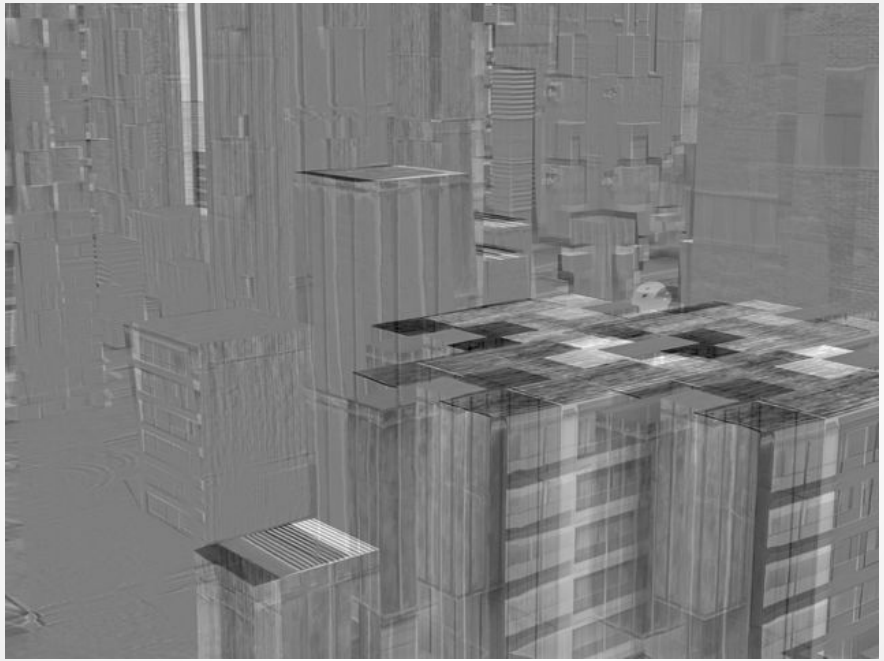
ps4-4-a-3.png

4b: Hierarchical LK (cont.)



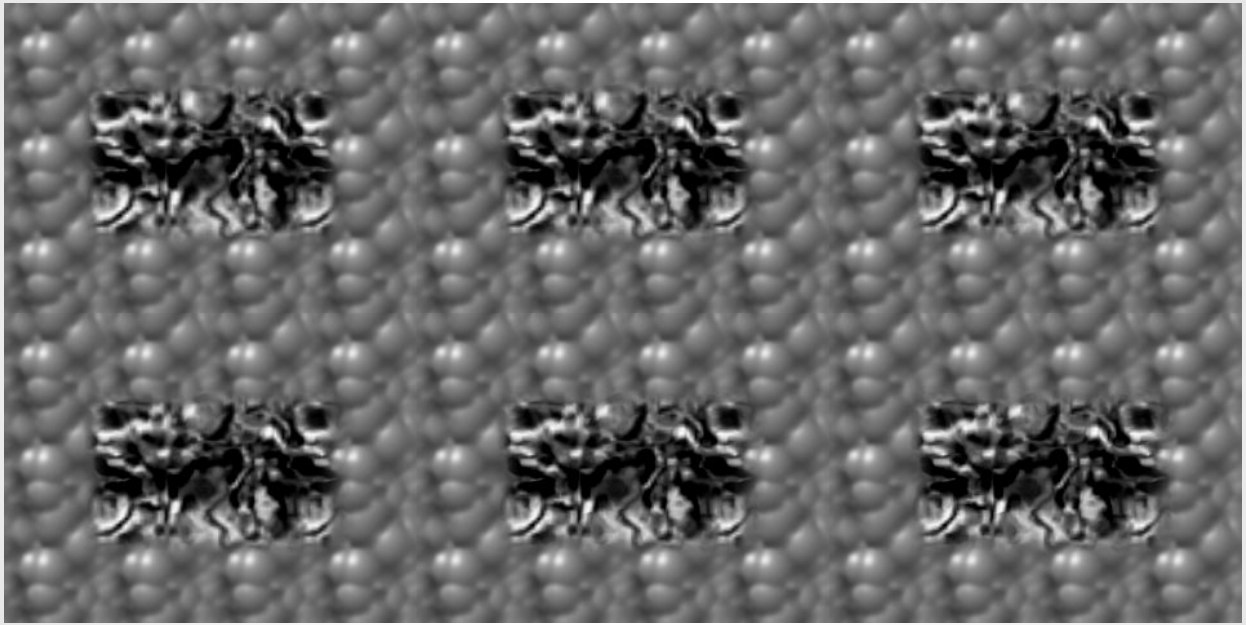
ps4-4-b-1.png

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.)

Video Link

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