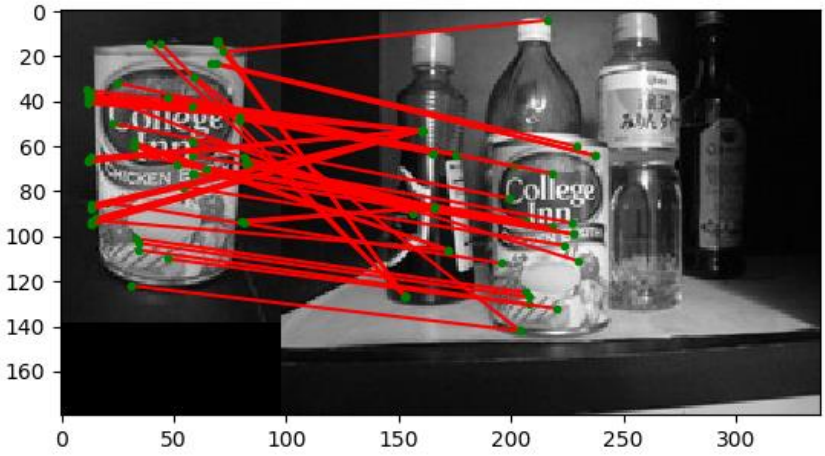
Q 1.5 – Keypoints with Edge Suppression

Q2.4

Chicken: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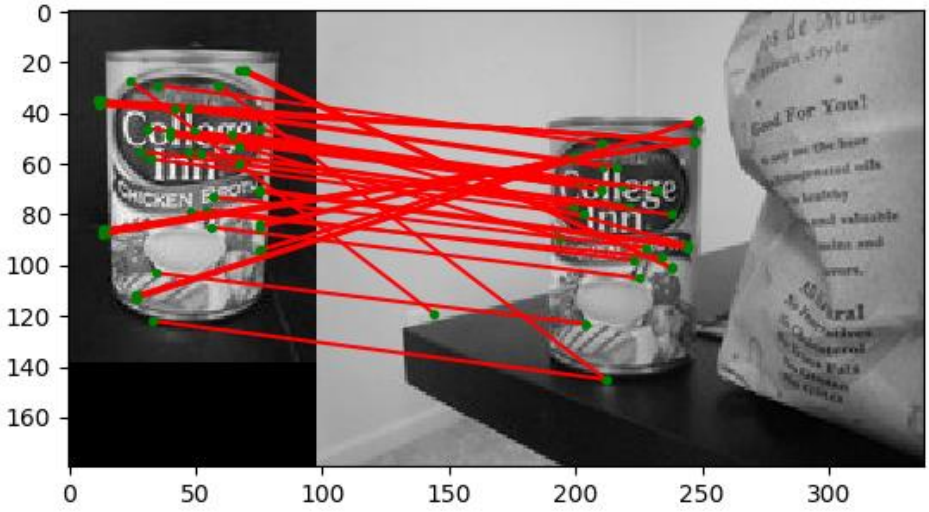
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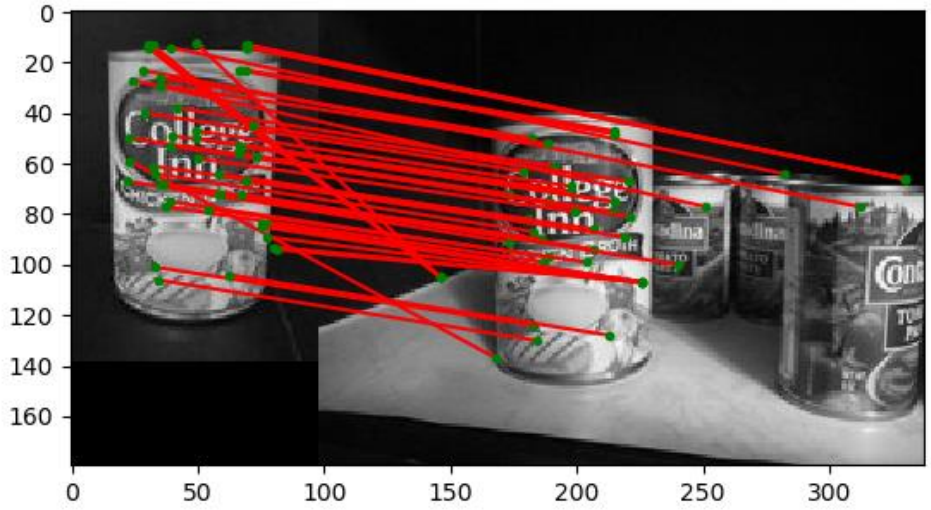
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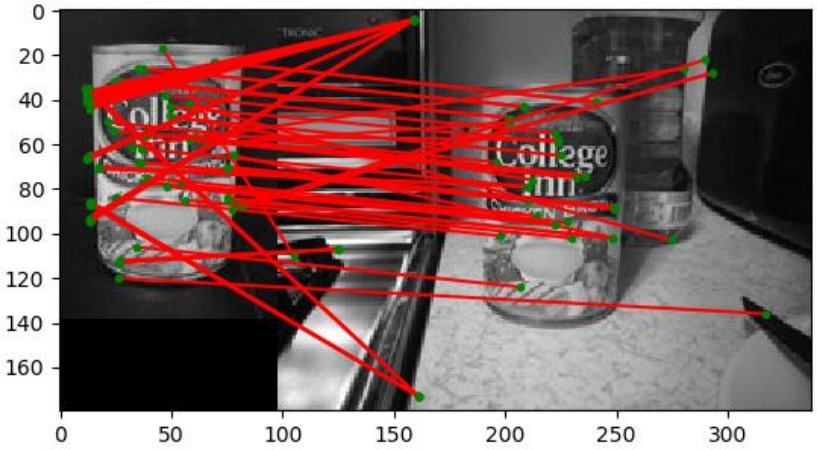
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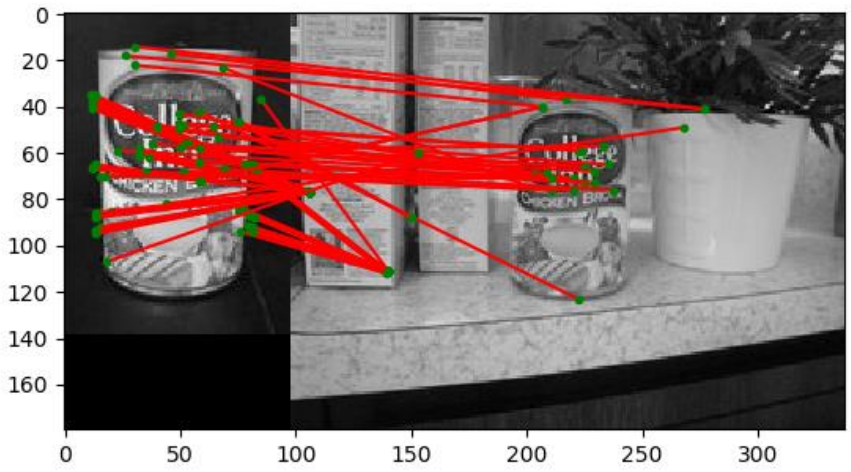
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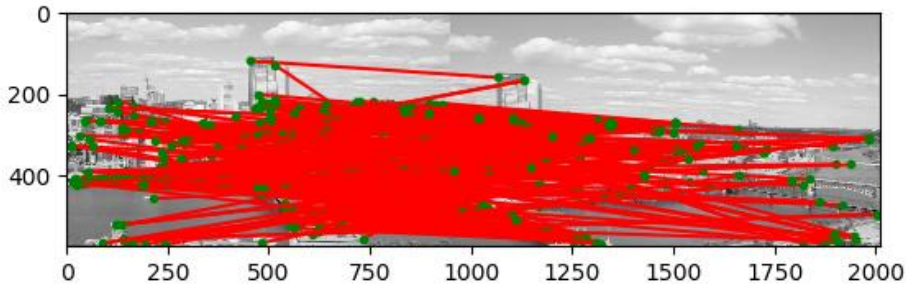
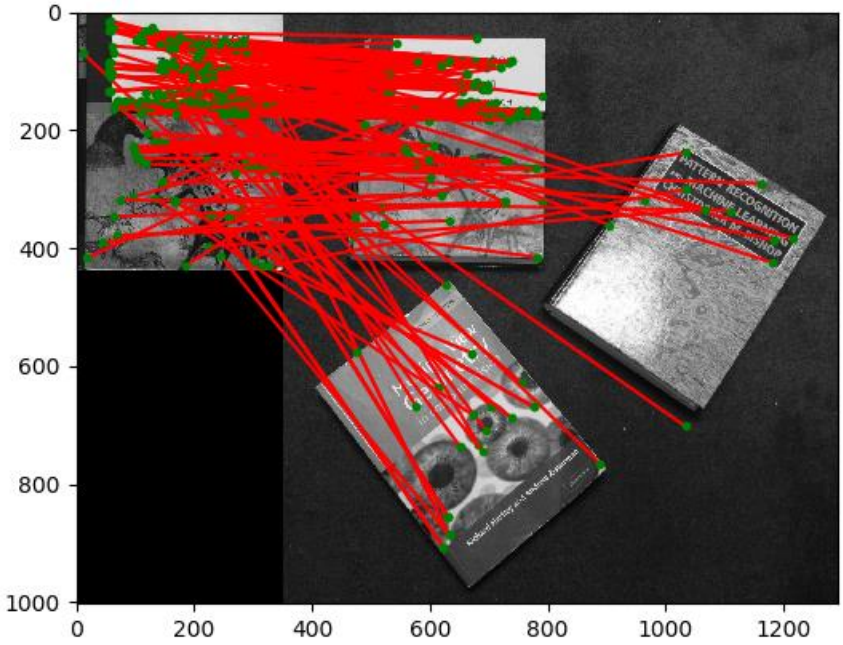
Incline



Texbook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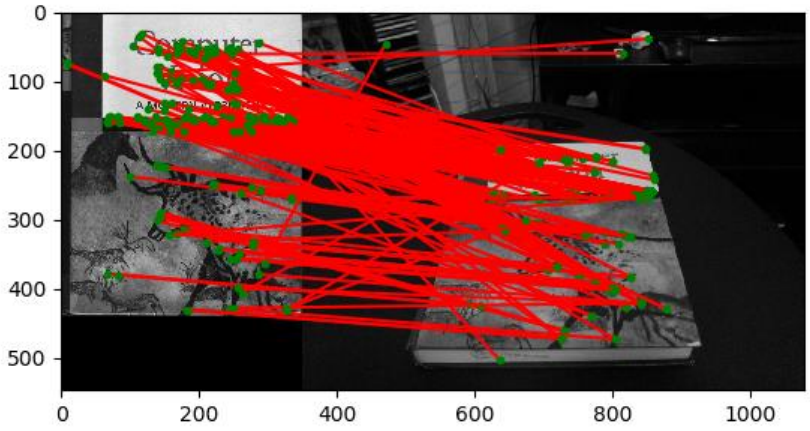
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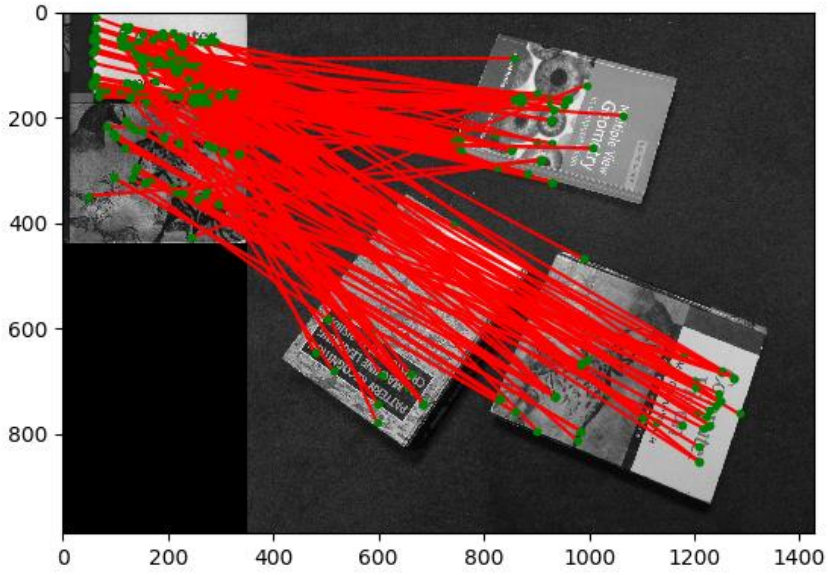
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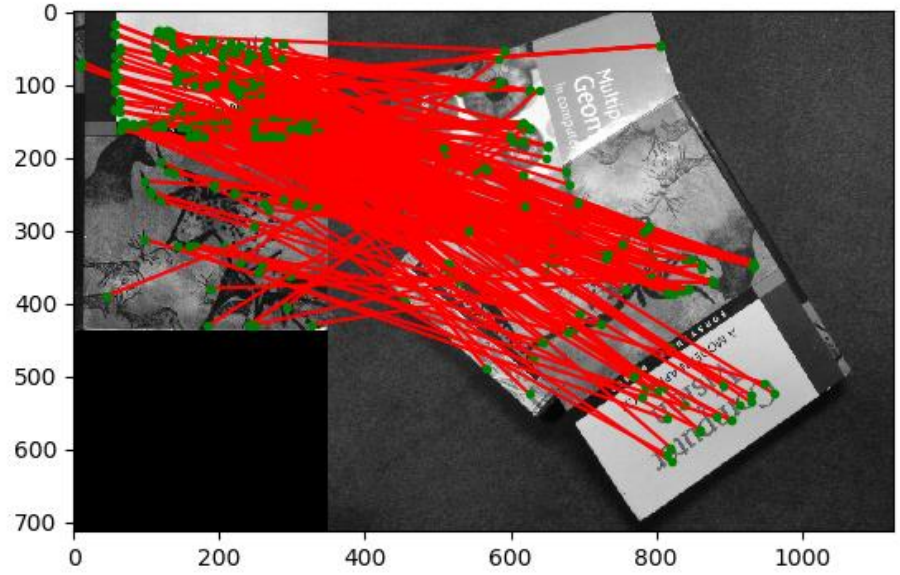
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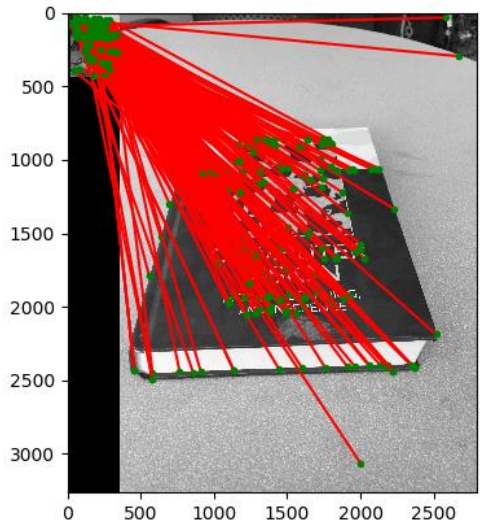
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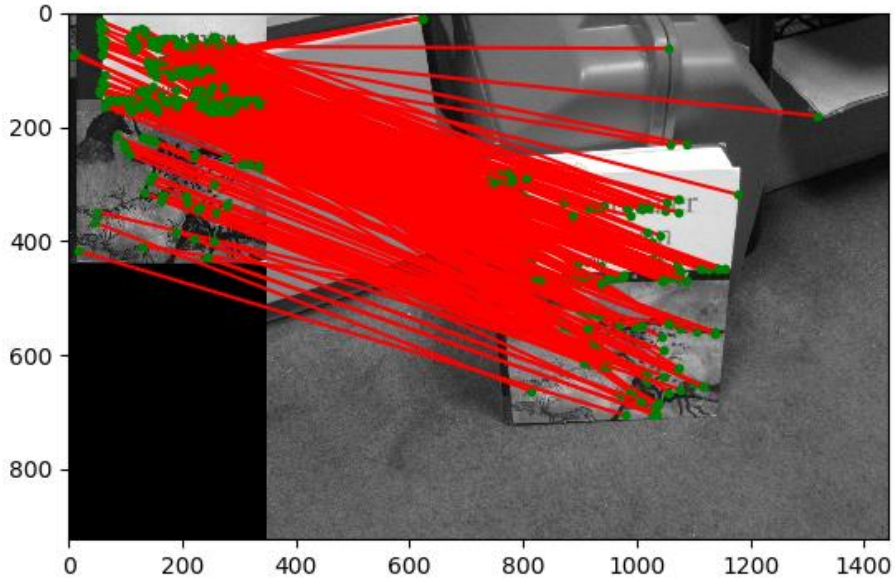
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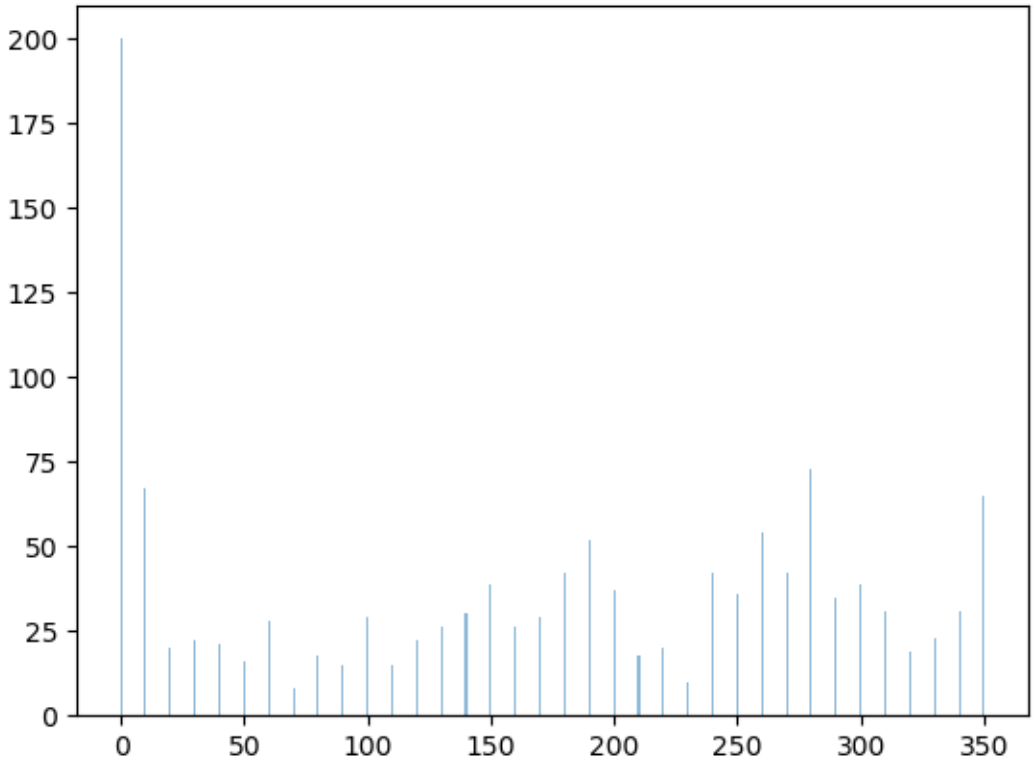
Q2.5

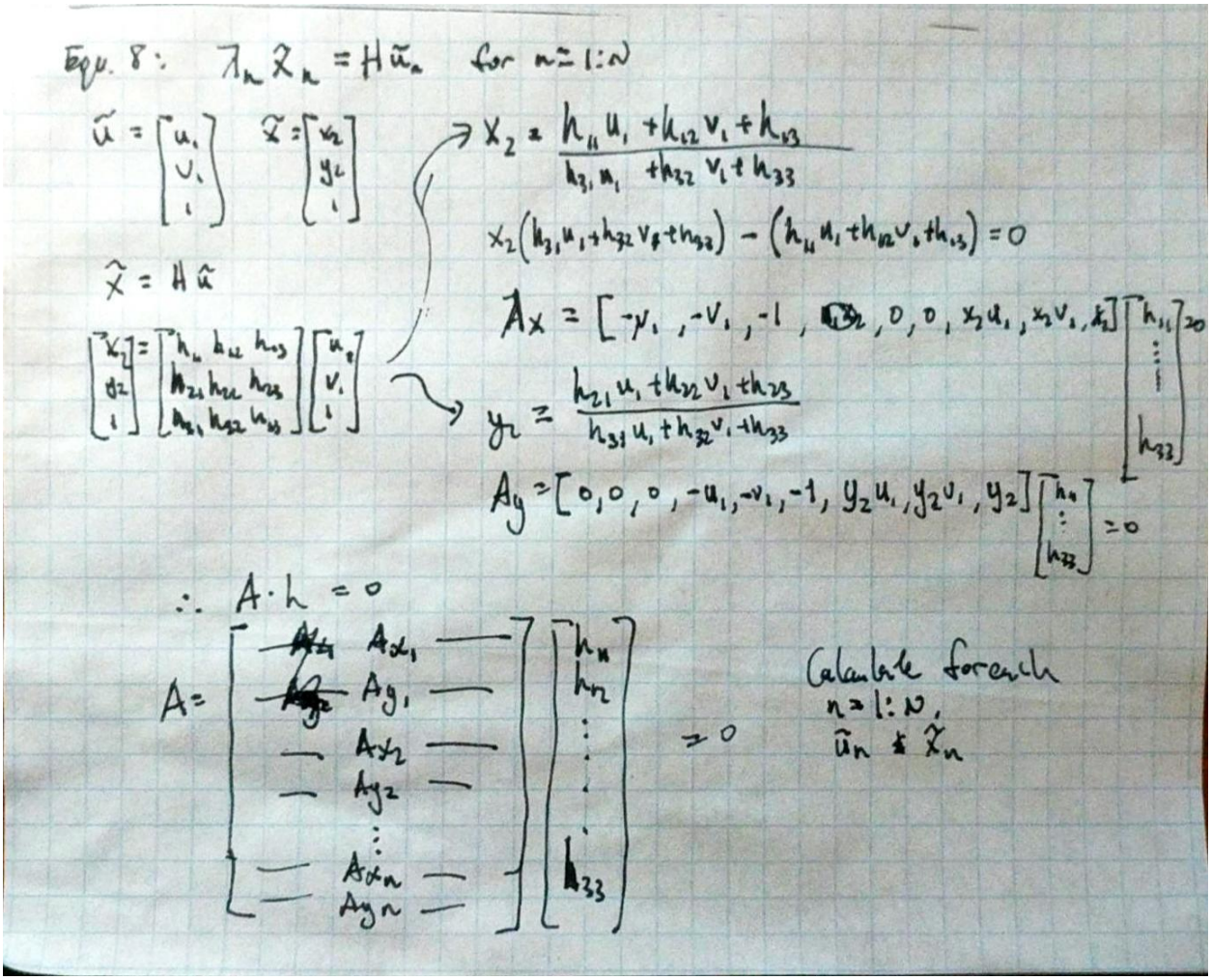


From the bar graph, we see that rotation highly affects the match rate; anything that is rotated, even just 10 degrees, significantly decreases match effectiveness.

This is might be because BRIEF does not account for rotation when calculating matches. Since BRIEF uses a rectangular patch to calculate descriptors, but the patches are not rotated when the image is rotated, the matches don’t align after rotation.

Q3.1

a:



b. 9 elements in h

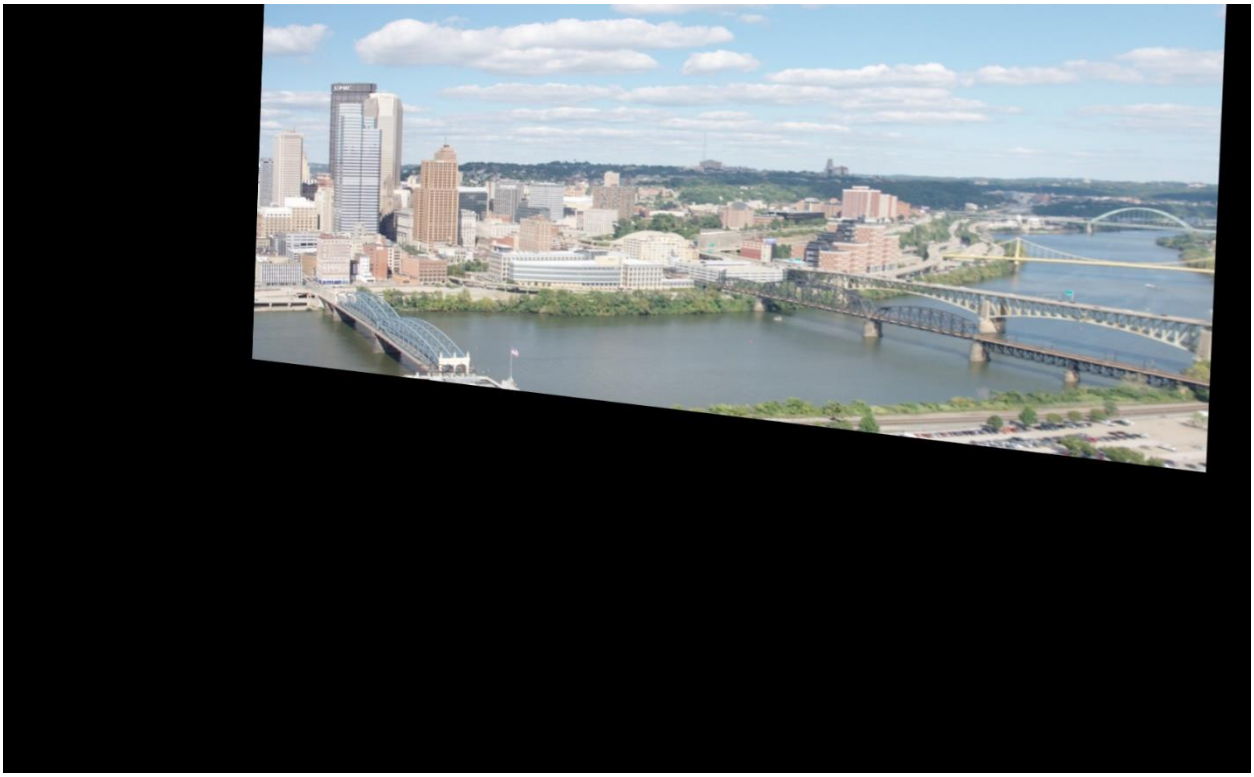
c. 4 point pairs are required to solve the system, matching with 8 degrees of freedom

d. Solve Ah = 0.

1. Find minimum eigenvalue of (A^T *A)

2. h is the eigenvector corresponding to the minimum eigenvalue calculated above

6.1



6.2 & 6.3