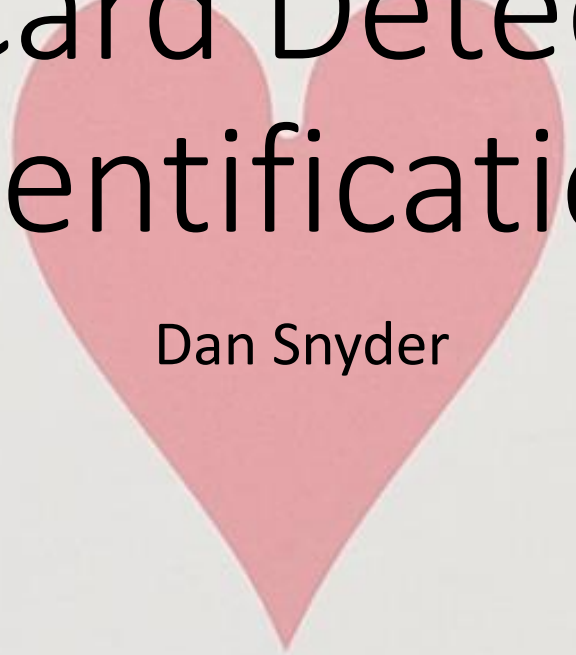
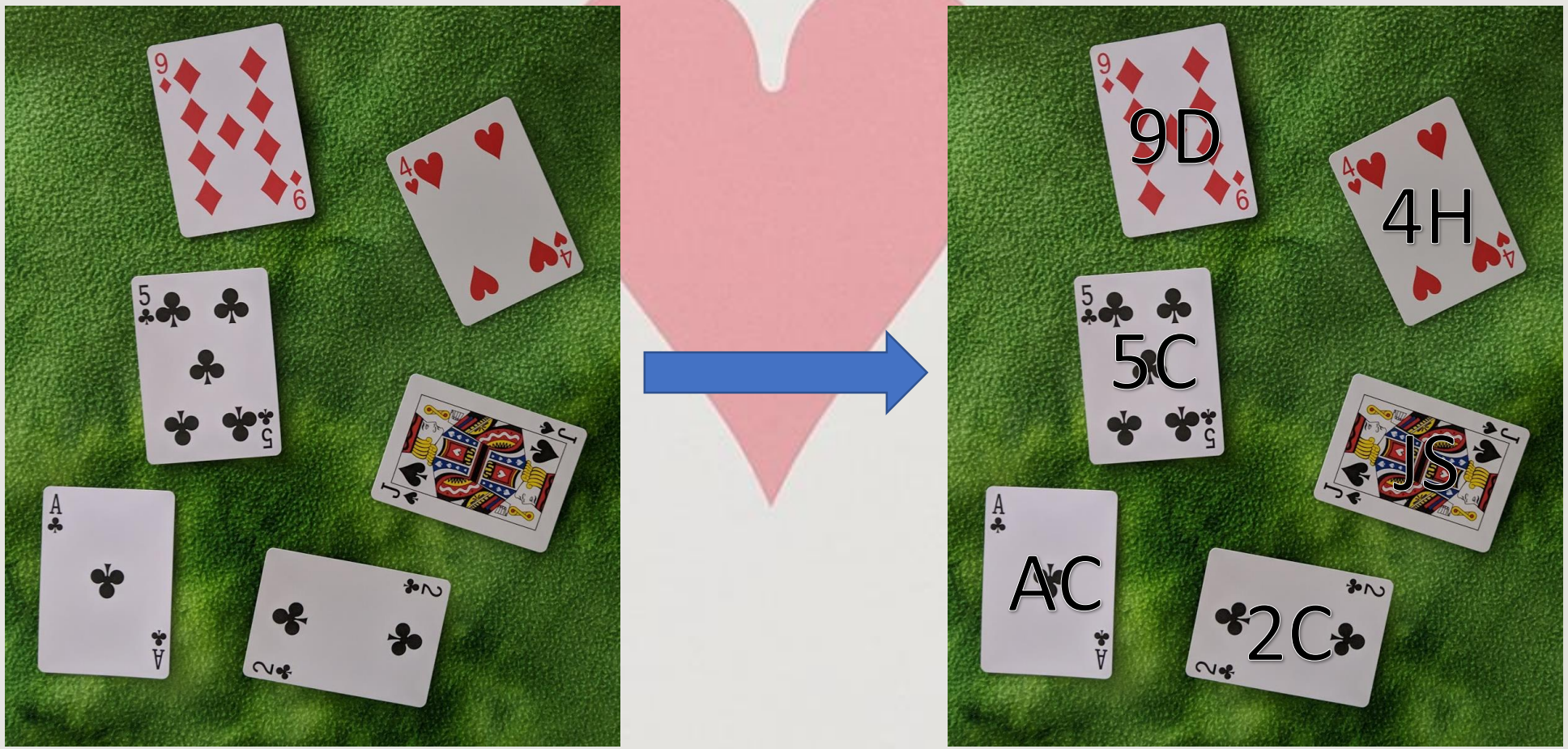
Playing Card Detection and Identification

Dan Snyder



Goal

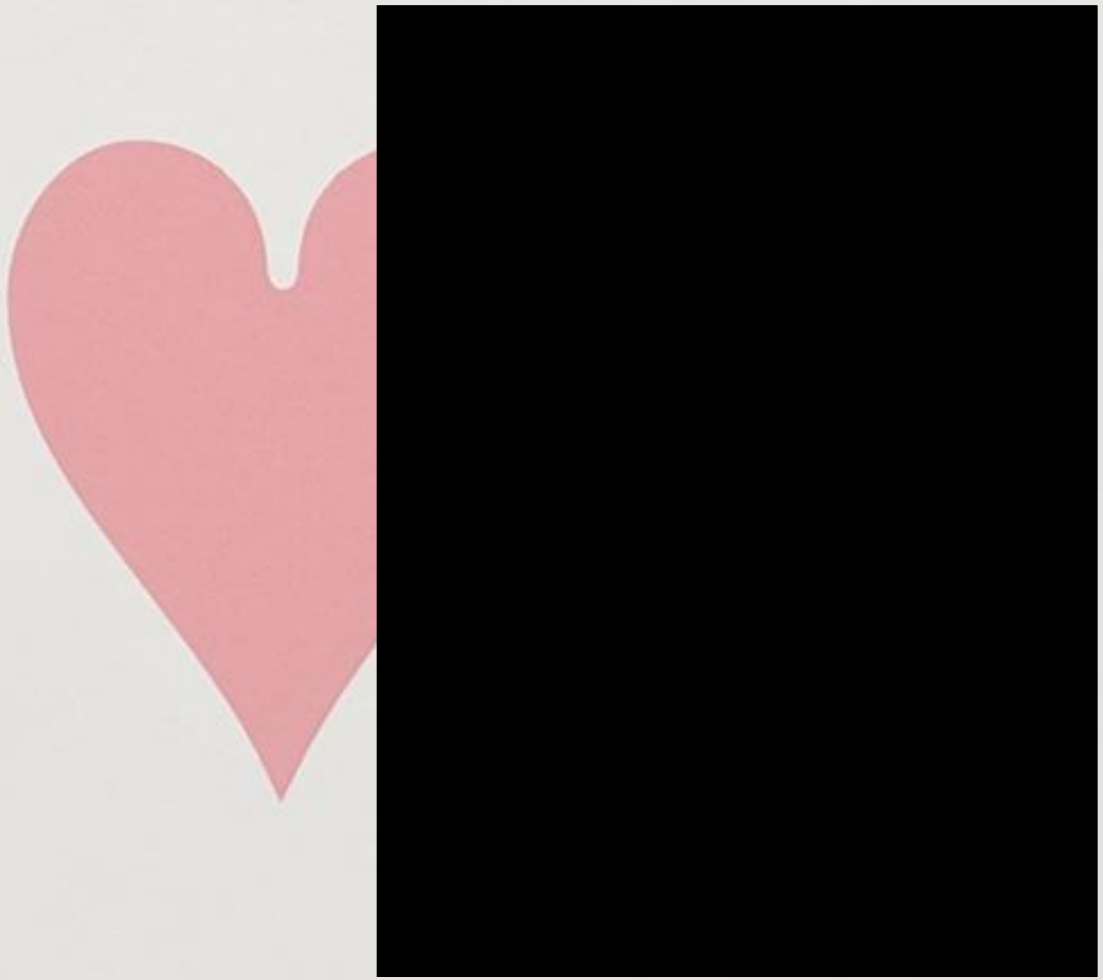
- Detect and Identify all playing cards in an image



Let’s Use Sift

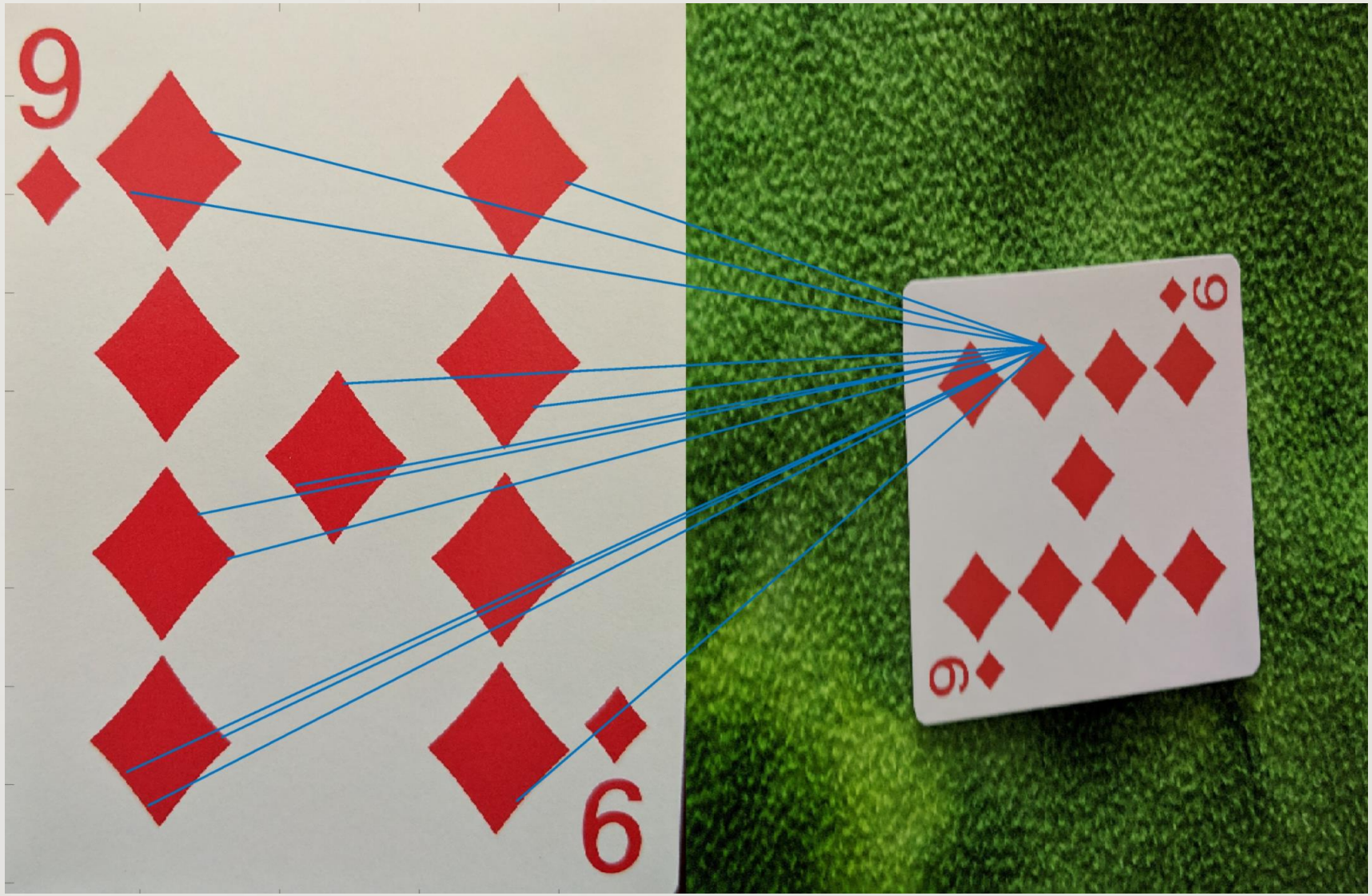
Why Sift

- Rotation invariance
- Scale invariance
- Robust to lighting



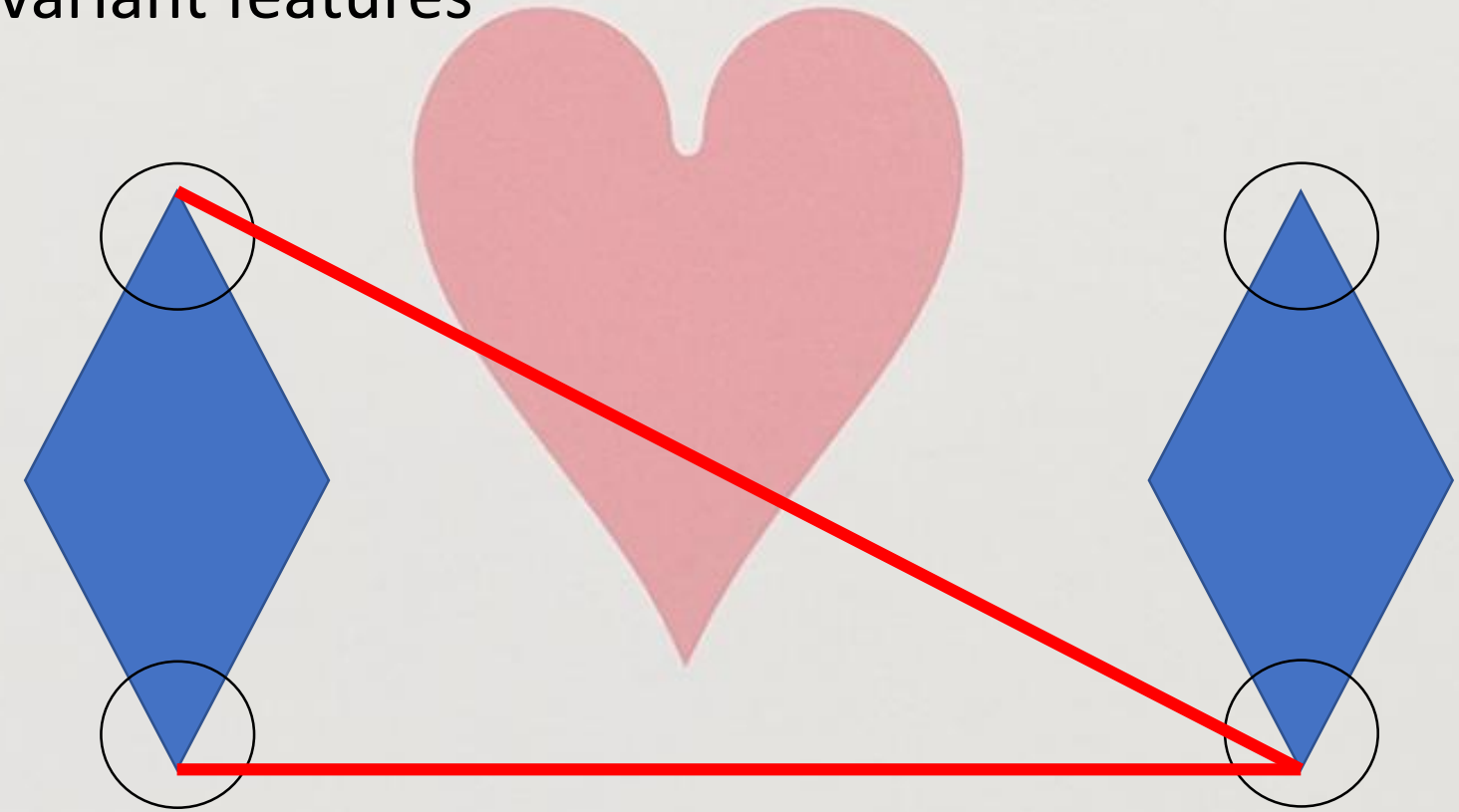
Results:

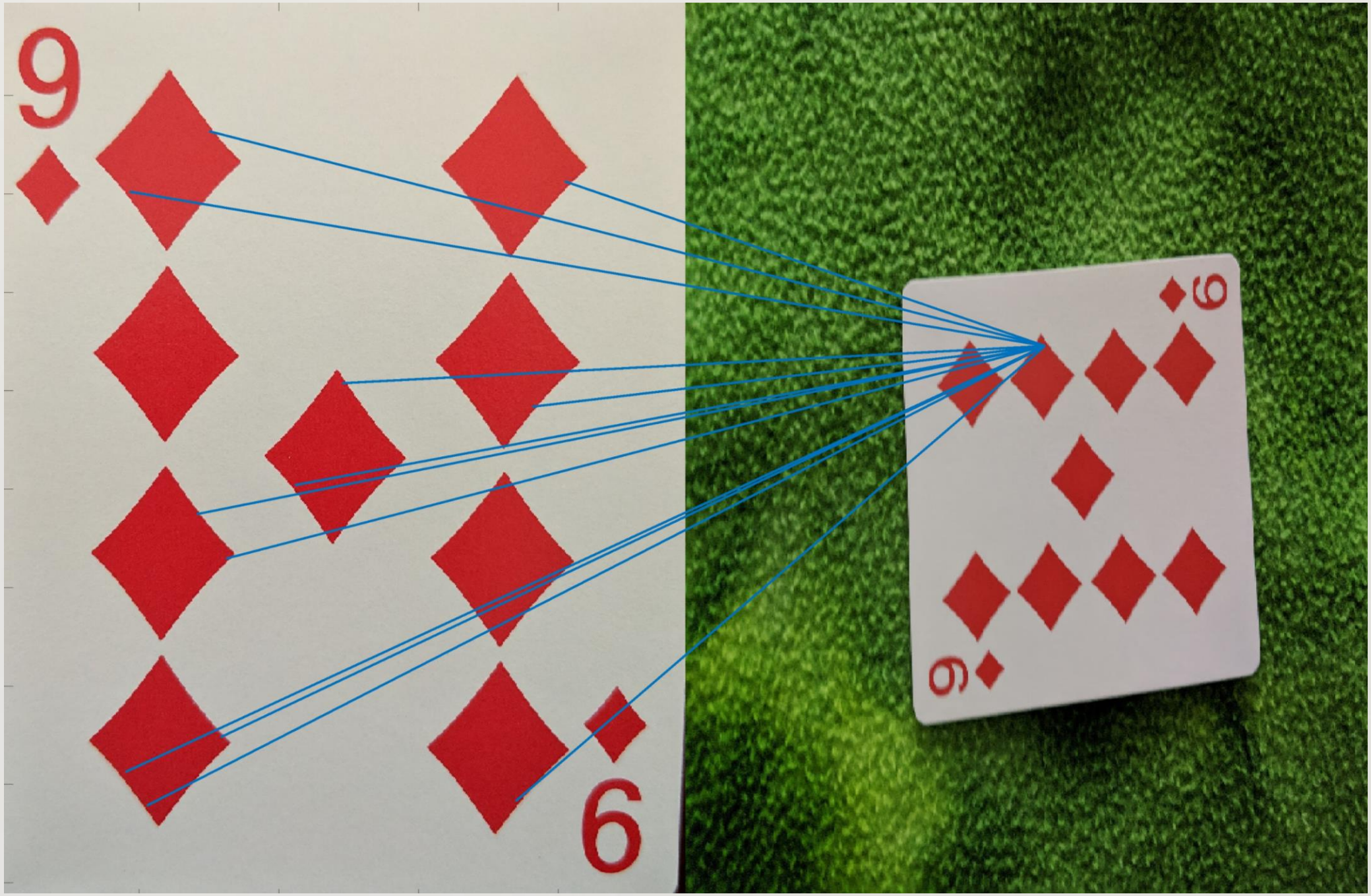
- Not good



Why Sift Failed

- Rotation invariant features

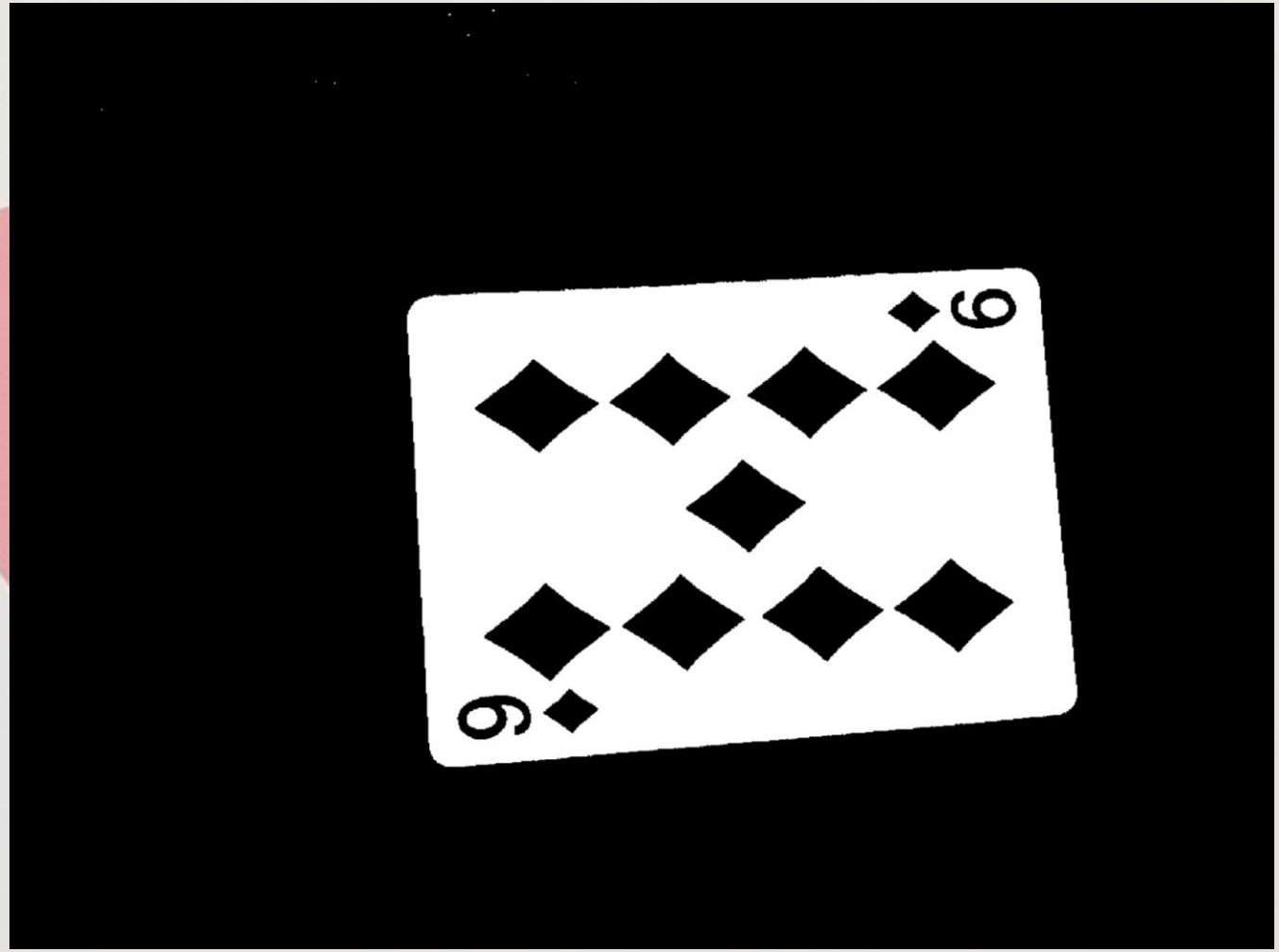



9
6
9
6

Approach #2

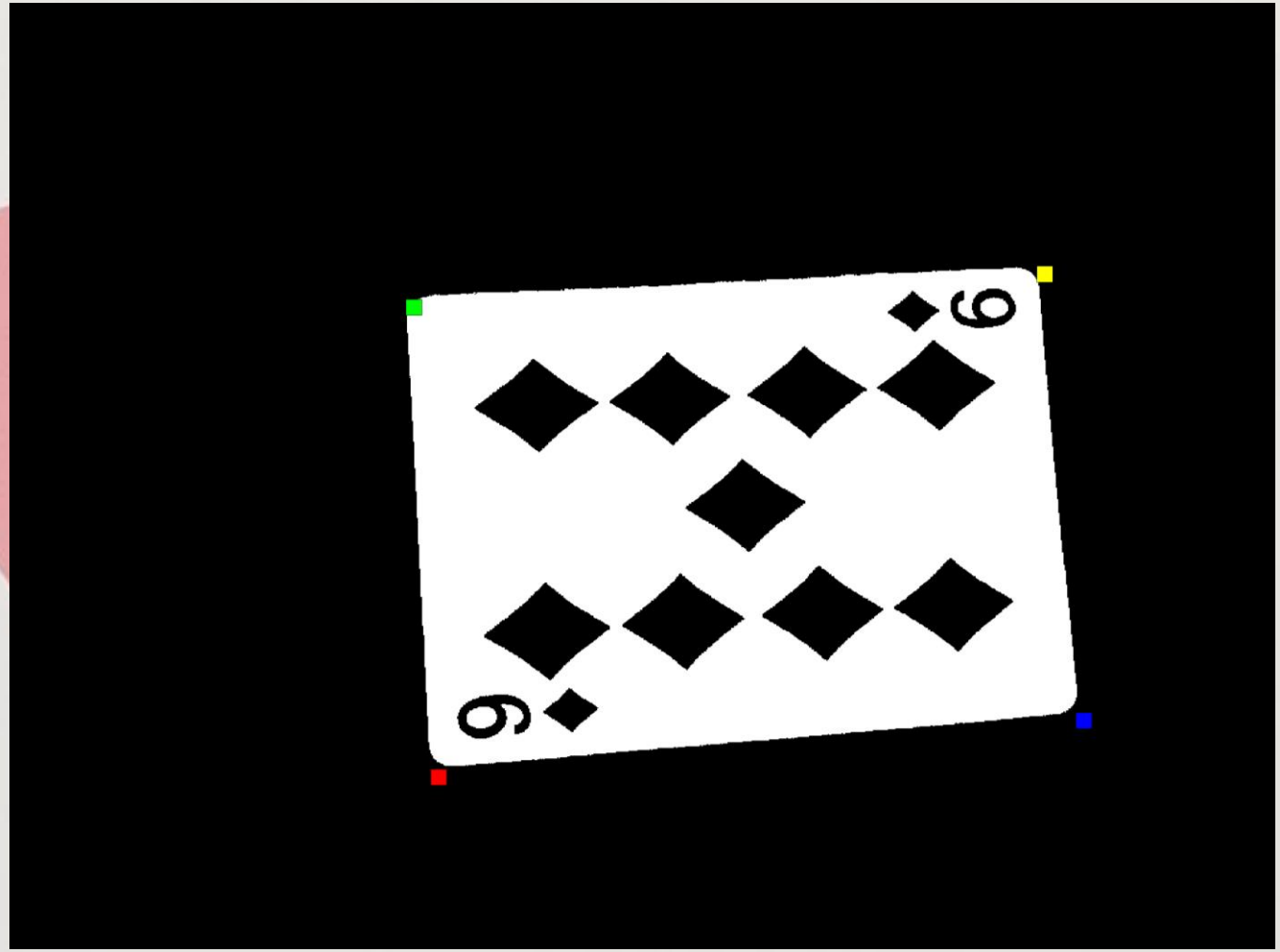
Approach #2

- Threshold



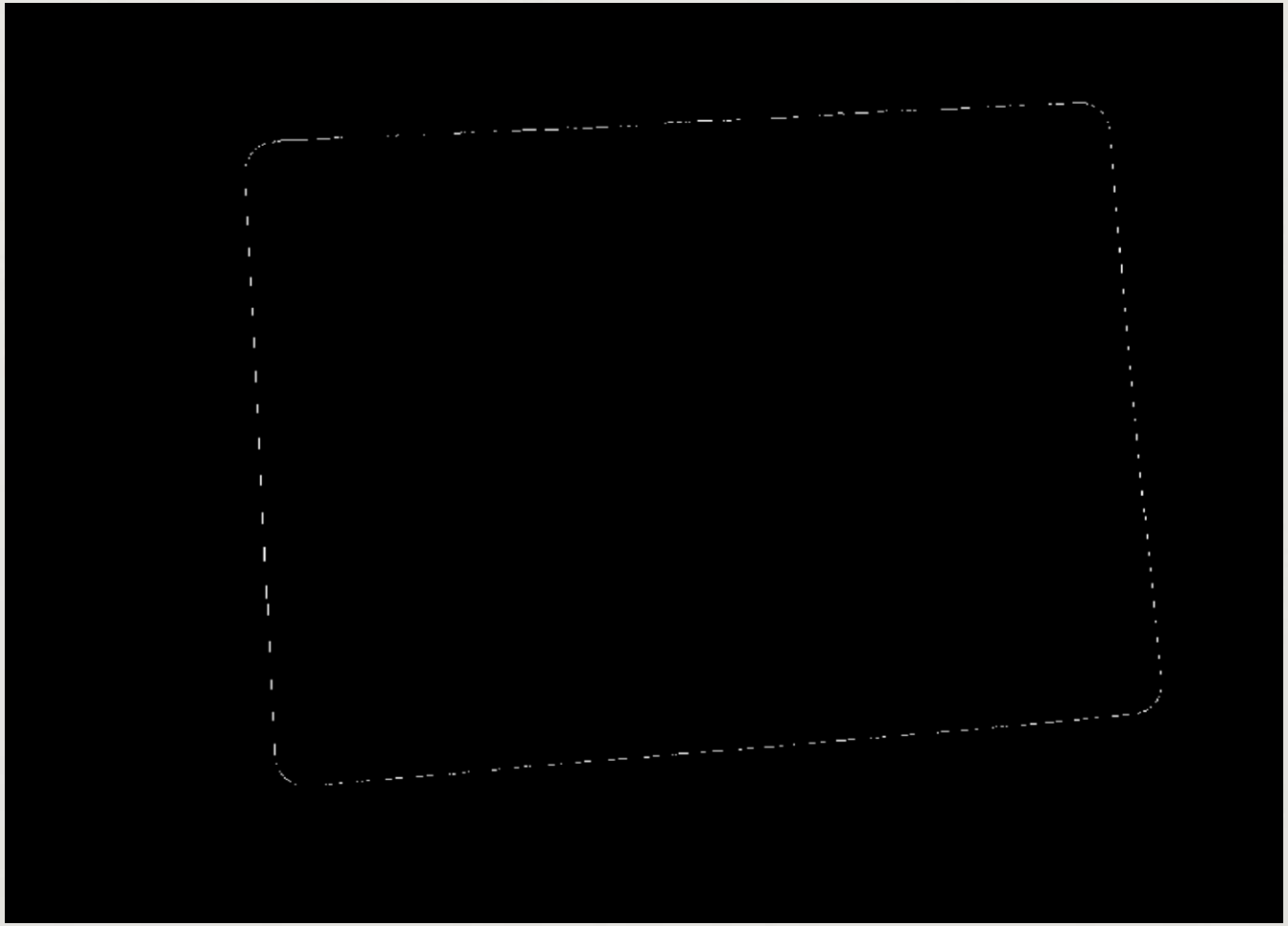
Approach #2

- Threshold
- Find & Arrange Corners



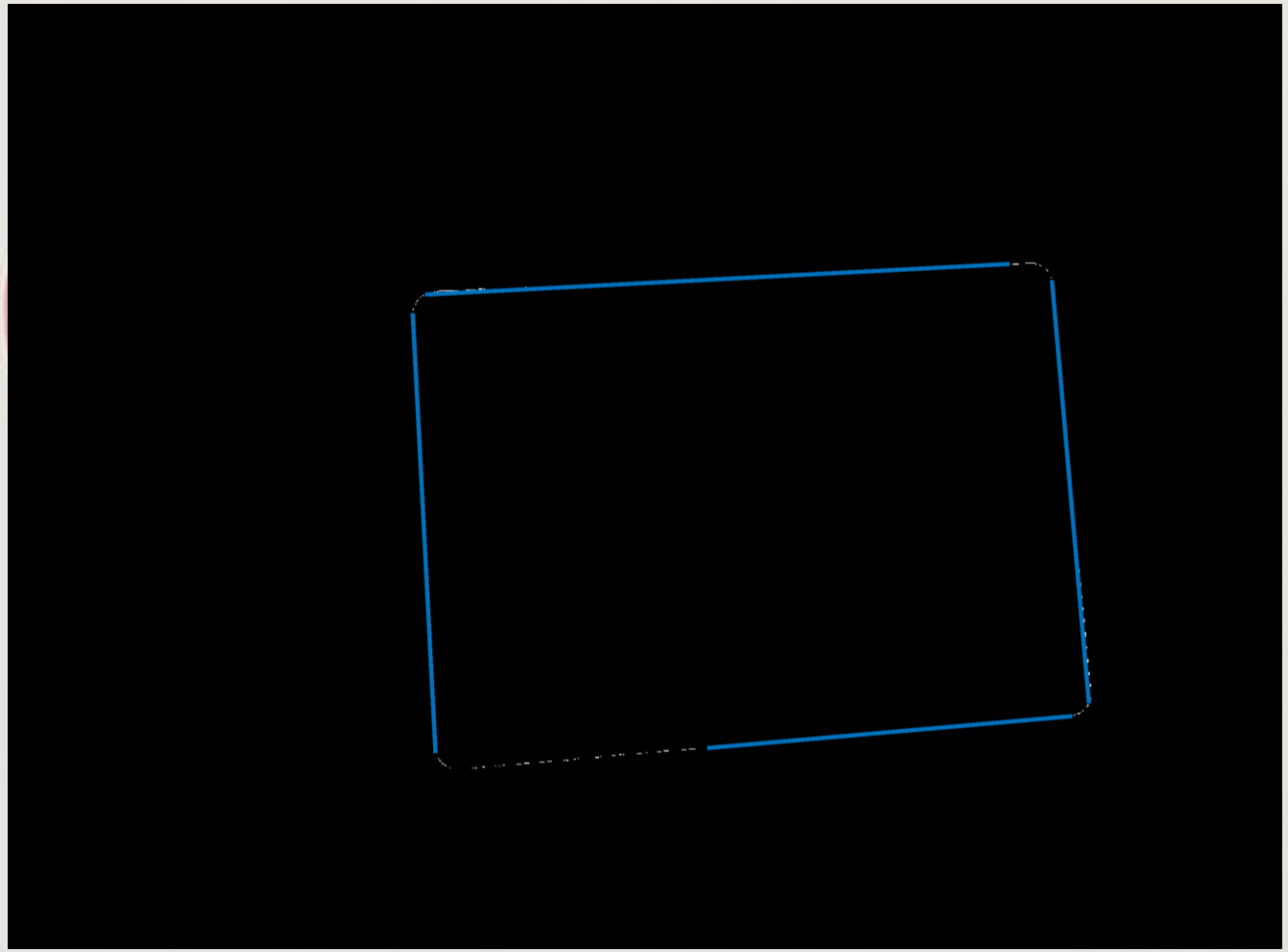
Find and Arrange Corners

- Find edges



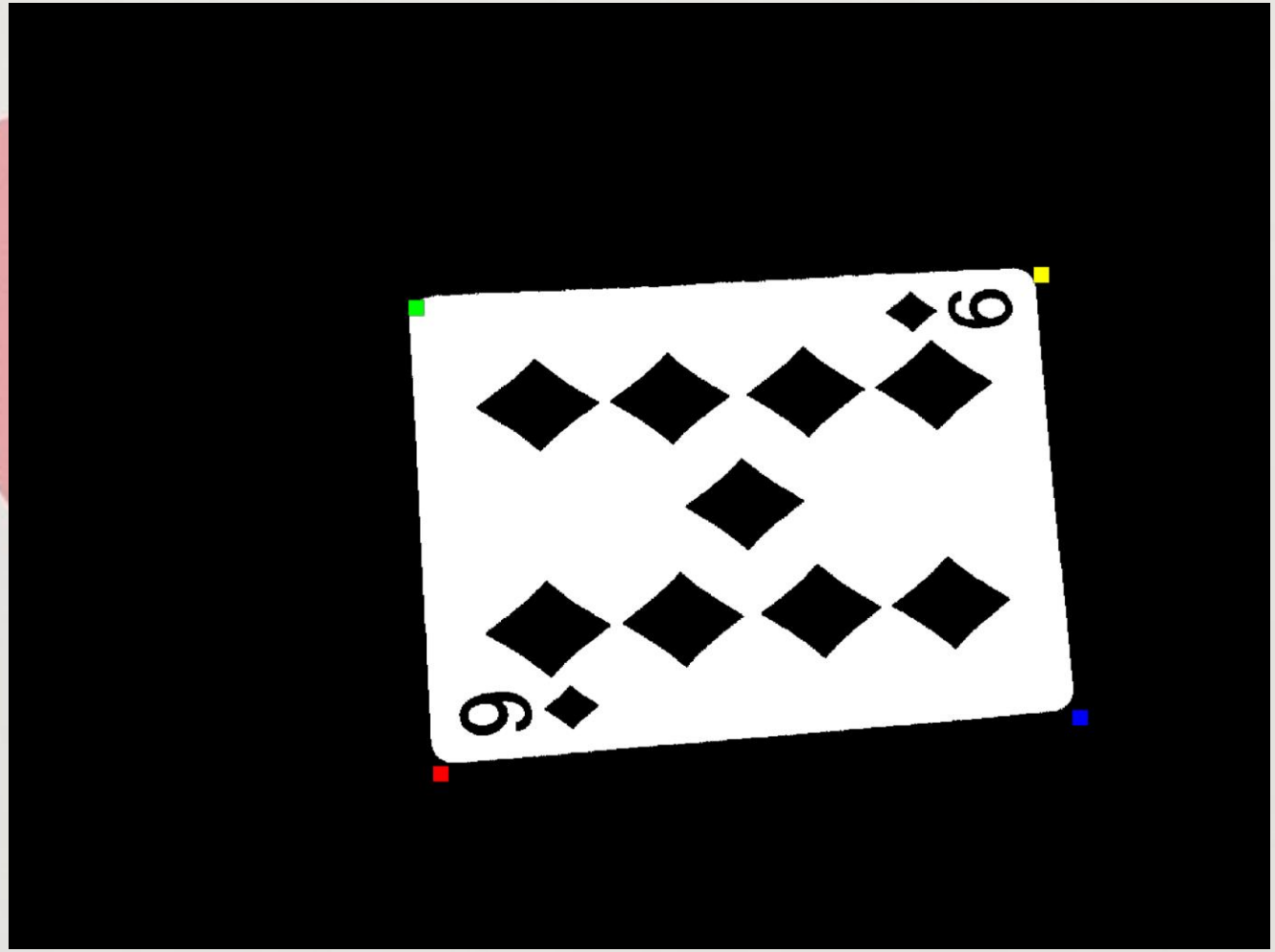
Find and Arrange Corners

- Apply Hough Transform



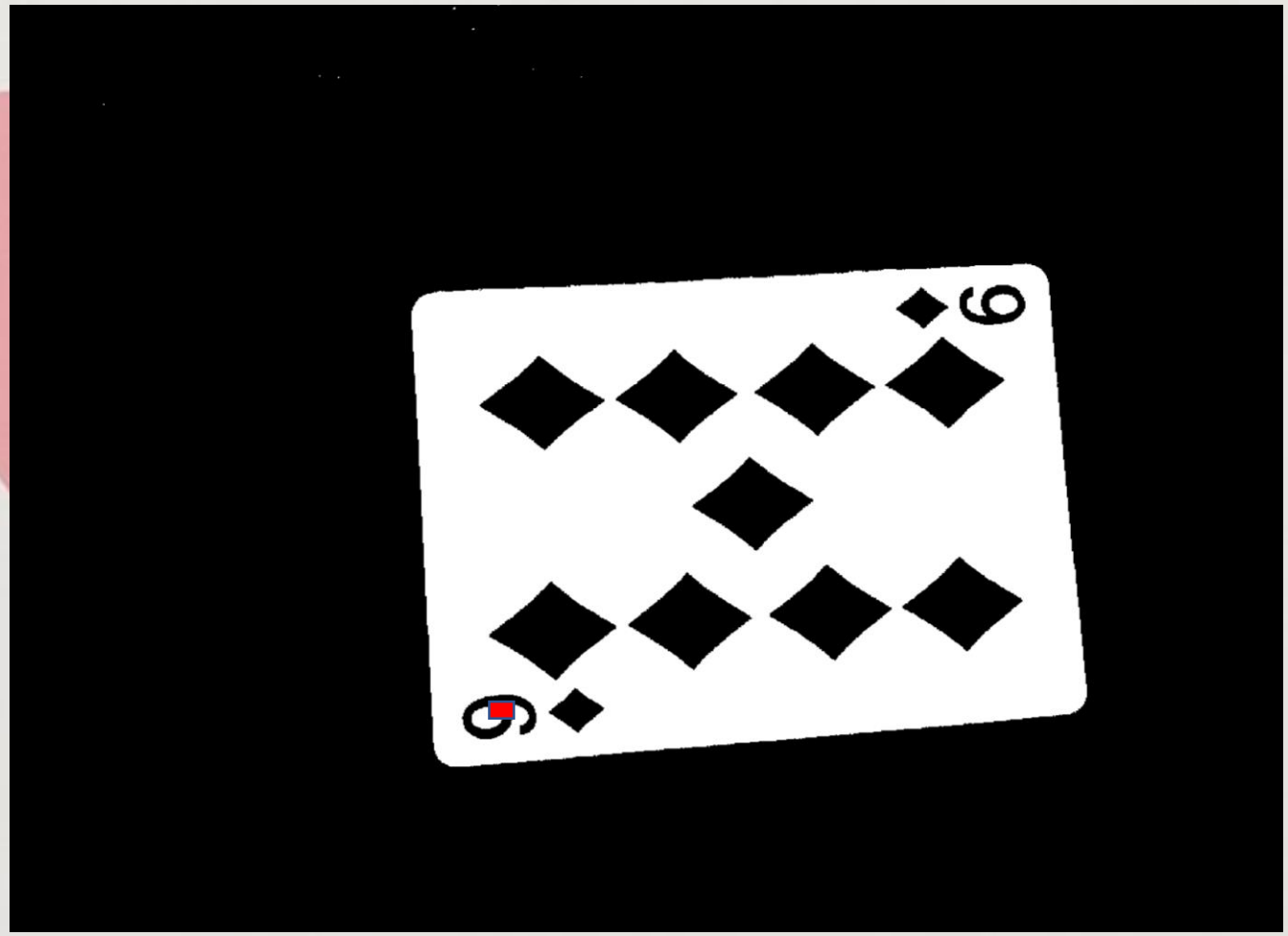
Find and Arrange Corners

- Intersections of lines are corners



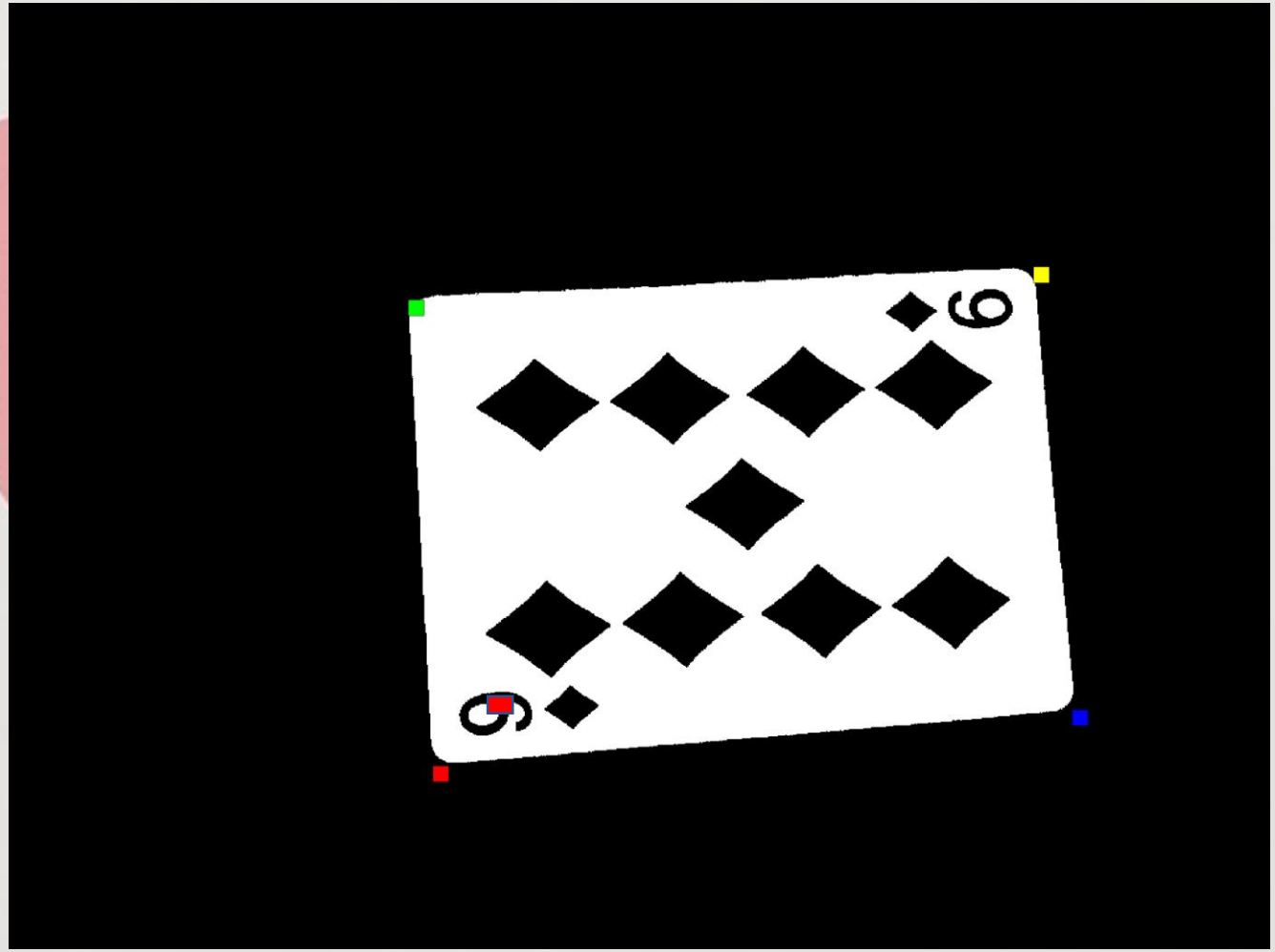
Find and Arrange Corners

- Identify dark region closest to a corner



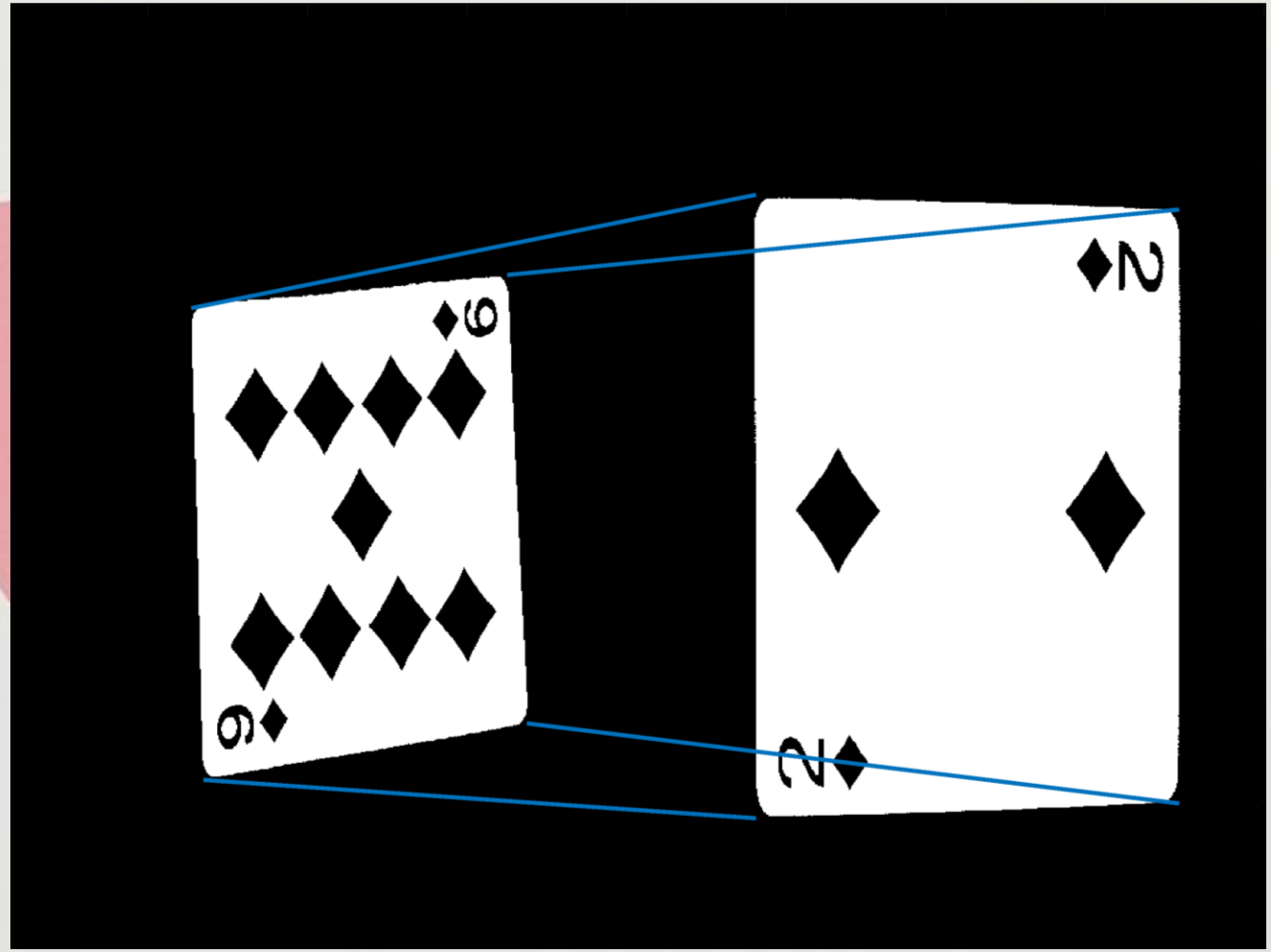
Find and Arrange Corners

- Mark closest corner as first corner
- Go around from there



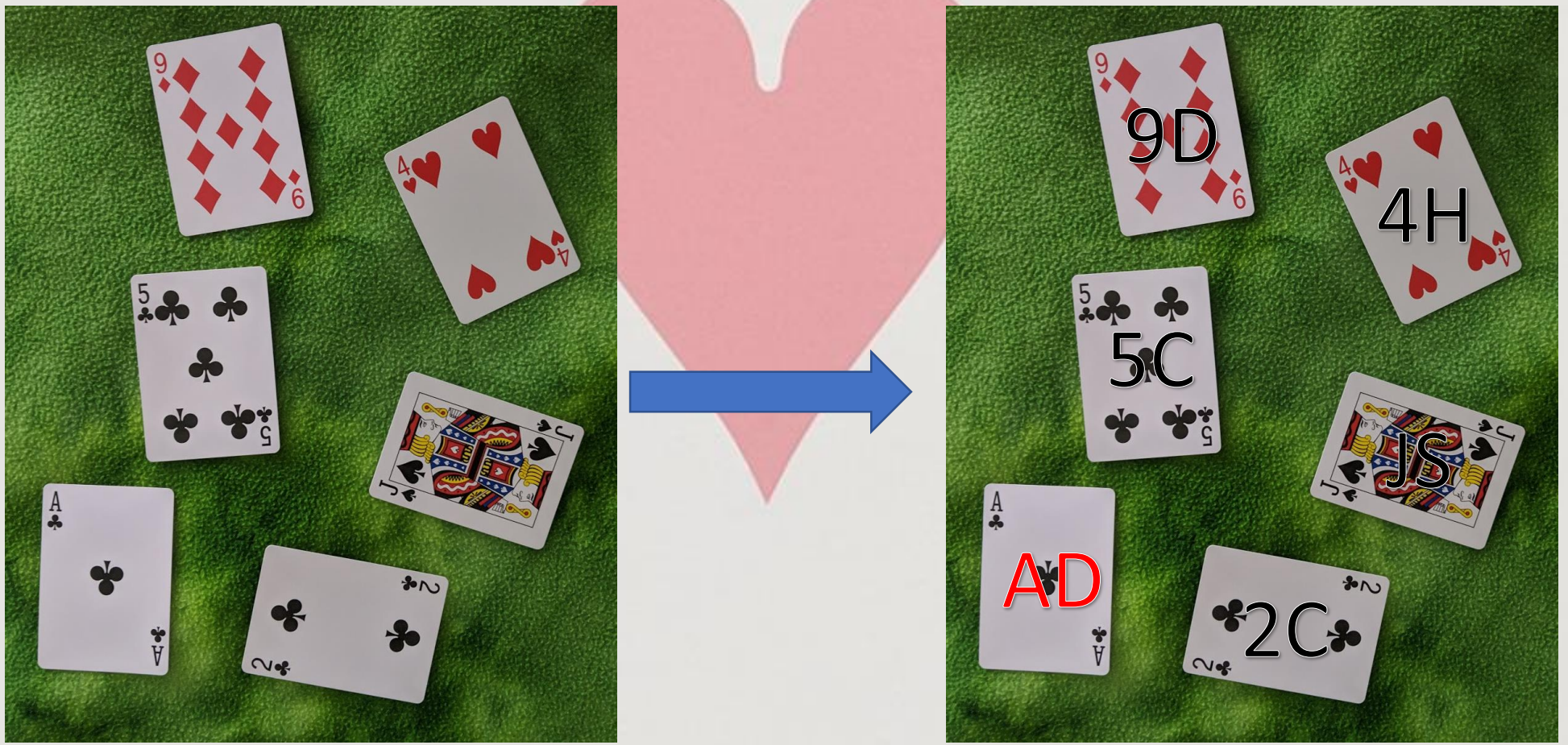
Approach #2

- Threshold
- Find & Arrange Corners
- Create Transform
- SSD between templates



Results

- 5/6 correctly identified



Next Step

- Test on extreme perspective
- Tune for better performance