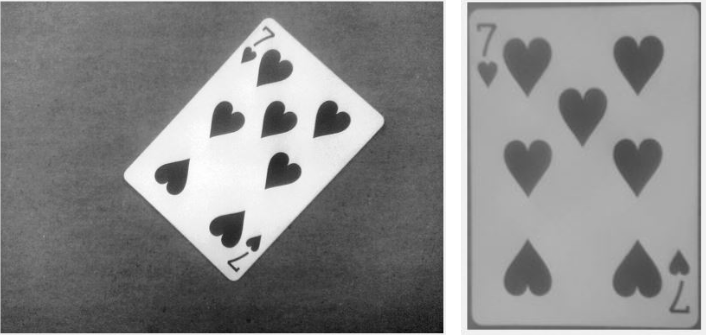
Image Processing Project 2

Fernando Koiti Tsurukawa

# Geometric transformations



### Objective

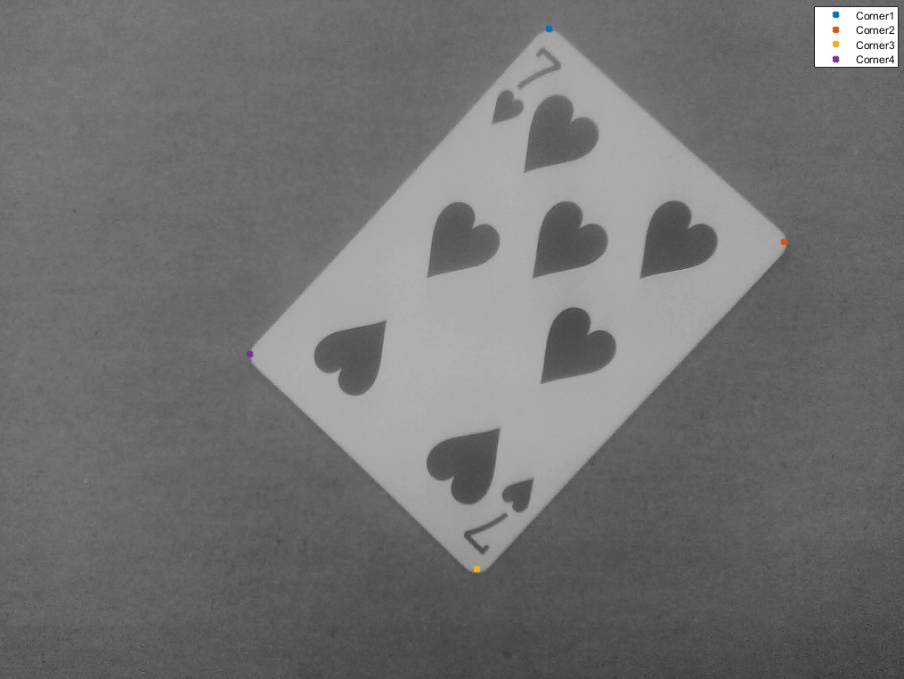
Undo the rotation of a playing card presented to a camera using geometric transformations and other image processing methods available.

### Step-by-step

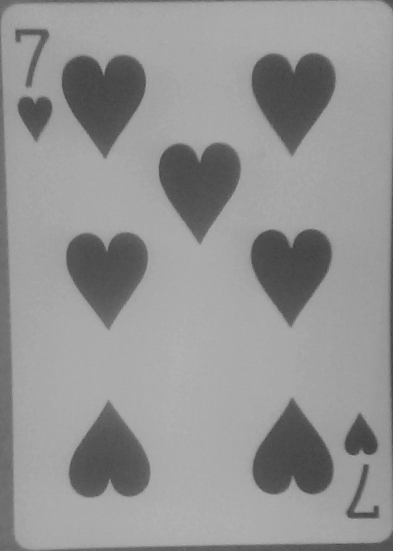
1. Blur the image using a moving average of size 10x10.
2. Using the blurred image, compute the threshold using MATLAB’s *graythresh()* method.
3. Sweep the blurred image downwards, upwards, left-to-right and right-to-left to find the card corners and store their coordinates.
4. Calculate the angle of rotation using the top-left and top-right corners of the playing card.
5. Using *imwarp()*, undo the rotation on the original non-blurred image.
6. Crop the image by using *imcrop()* such that all pixels above the threshold are maintained.

### Results

First test image:



Second test image:



Third test image:

