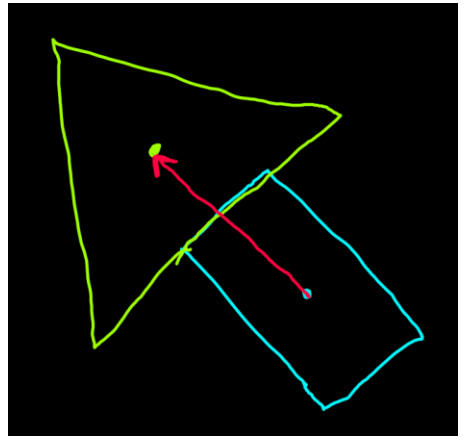
Any Orientation Arrow Detection

Method 1

- This is the best method, any other method will fail due to edge cases, we use OpenCV to detect any triangles and rectangles in the image.
- Then we calculate their midpoints/centroid and calculate the angle between the 2 points to get the orientation



Method 2

- Another reliable method, we use a neural network to train on huge dataset
- This dataset can be generated by rotating a few arrow images by x degrees and looping through them multiple times

Method 3

- Not as reliable
- We find all the angles in the arrow, 2 will be around 90˚, the other 3 will be part of a triangle
- 2 of the other 3 angles will be equal, the last remaining angle is in the direction of the tip. We detect the relative position of this angle wrt to the middlepoint of the original 2 90 ˚ angles
- This has an edge case where the tip angle is also 90 ˚. However this is dealt with easily because we now know that the other 2 angles in the triangle will be 45 ˚

Method 4

- Pretty unreliable
- We detect all the corners in an arrow and take the 2 furthest points(there will be 2 such pairs)
- Then we find get the direction of the tip wrt the midpoint of the base
- This method will break with squished arrows