

Daily Log

Monday, January 20

Gathered more test images for current program. Searched for images with round objects, irregularly shaped objects, and regularly shaped objects (like a sign).

Tuesday, January 21

Tested current code against the new testing data set. Played around with the values in the code to try and improve the results.

Thursday, January 23

Collected more test images to test and tweak current code with. Researched feature tracking algorithms. However, after reading a lot of different papers and websites, it probably won't work for matching objects with shadows.

Timeline

Date	Goal	Met
January 12	Identify at least two key points (corners, sharp points, etc.) on the shadow and object	Yes, the current code does locate two points if given an image where only the shadow regions and boundaries of the object are marked. However, many extra points are also identified.
January 19	Identify at least 4 key points on the shadow and object	Yes, the points are identified, but I still have trouble with deciding which identified points are useful for the next step.
January 26	Associate at least 1 key point on the shadow with its respective point on the object	No. I'm having trouble especially when matching points for irregularly shaped objects.
February 2	Associate at least 1 key point on the shadow with its respective point on the object	
February 9	Associate at least 2 key points on the shadow with its respective point on the object	

Reflection

After testing a lot of images where the object is a sphere, I have found that my program does not identify points on the boundary of the sphere. Rather, my current program identifies features found on the sphere, like the stitching from the baseball, and occasionally is able to identify the point where the object and shadow meets.

I will need to look for different ways to associate the points between the object and the image. I found a research paper that used an object's shadow to locate the light source, however that required the dimensions of the object to be known. I might consider adding a condition to the input image in order to make the object-shadow association easier.

At the moment, my assumptions about matching the extreme points of an object only work when the object is a regular shape (rectangle, square, triangle, etc.) because the Harris Corner detects the pointed corners best on both the shadow and object. The problem I keep running into is that the shadow itself is only grey, so there isn't a four-directional gradient cue like on corners of the actual object.