ASSIGNMENT 5 - REPORT
April 2 , 2018

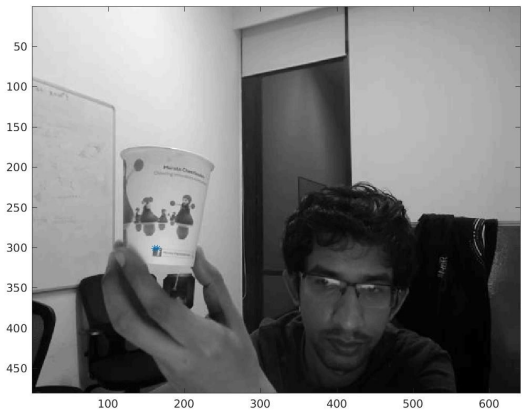
We have implemented the minor eigen-value method to detect salient feature points in frame. Implementation in **getGoodCorners.m** selected those feature points with good structure tensors question and also we put a parameter ‘threshold’ that controls how many feature points are to be tracked.

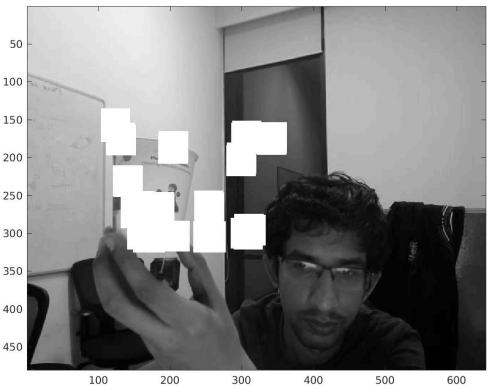
But The Above Method is not giving the required Corners ,So we are manually selecting the 2 corners on the cup.
First we are discarding those corners on which a full patch cannot be applied
Second we are selecting first two corners that are on the cup as including other corners is taking lot of time and are not required anyway.
The globalTemplate image which contains all the templates that are used.This includes all updated Templates (after every 15 frames) also.

Controls Implemented:
There should be a parameter to choose how many feature points are to be tracked :
In getGoodCorners.m - mineigenthreshold
Patch size should be a parameter but, ideally, you should start around 40 pixels.
In getTrackedPoints.m -patchsize

The solution is iterative, so use a threshold and max iteration parameters for convergence check.
In applyKLT.m -
deltapthreshold
maxloopnum
Also, after every 10 to 20 frames you should extract a new template, since the patch may have changed a lot:
In getTrackedPoints.m - maxframenum

output folder contains :
0FIRSTFRAME_MAINCORNERS.jpg
0globalTemplate.jpg
And all other required images that contains the tracked images.





Ref:
The KLT algorithm used is written from :
http://crcv.ucf.edu/courses/CAP5415/Fall2013/Lecture-10-KLT.pdf

Since we are allowed to use inbuilt function for imwarp the affine_transform_2d_double.m is taken from the following link:

https://www.mathworks.com/matlabcentral/mlc-downloads/downloads/submissions/21451/versions/12/previews/functions_affine/affine_transform_2d_double.m/index.html?access_key
https://in.mathworks.com/matlabcentral/fileexchange/24677-lucas-kanade-affine-template-tracking