

Lab 1

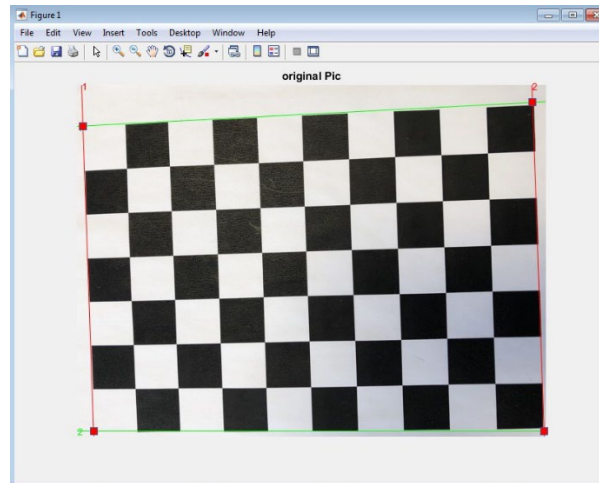
Due date: January 26, 2024

Assignments are done individually

Total Marks: 20 Marks

[10 marks] Q1 – Hough Transform

The goal of this assignment is to write a code to use Hough transform to detect checkerboard in an image. Below is the result of applying this assignment complete code. Show me your code during the lab and if you cannot finish it in the lab then finish it at home and come show me your results – you have until the deadline to do so.



Prelab work:

- Familiarize yourself with the matlab commands for edge detection and Hough transform
- Familiarize yourself with matlab commands to draw points, lines, plot, sort, histcounts
- Familiarize yourself with matlab read images, write images
- Read Szeliski section 2.1.1

During the lab

- Download the zipfile called lab1 and extract it to the matlab workspace
- Follow the step by step instruction during the lab time



Q2 - (10 marks)

During the lab

As you have seen in the different test images that the results are not that great and sometimes even the detected angles are not correct (try image test4.jpg).

1. Modify the code to detect very accurate results of the checkboard. Feel free to come up with any new ideas or changes
2. Extend the code to make it able to run on a video. It should process every 15th frame and display the results for that frame then pause

Submission Instructions

Solve Q1 and Q2 in one Matlab program (or in two separate programs if you prefer to do that). Submit everything as one zip file **to canvas**. Note that you can resubmit an assignment, but the new submission overwrites the old submission and receives a new timestamp.

General Guidelines for Programming Assignments:

- The marking of the implemented functions is done following this general scheme:
 - Correctness and logic 80% - the program logic and algorithm behind it is correct and it performs according to the post conditions in each function and the code do compile with no errors
 - Style 10% - code has comments and properly formatted/indented
 - Optimization and simplicity 10% - The code has reasonable optimization and is not awkward nor too complicated
- Marks can be deducted if the student does not implement any specific requests in the assignment