Issa Bial

Computer Vision 2023

Project 1

I will keep this short because I am running out of time, please check the README.txt for instructions on how to run the program, it is relatively simple.

First, to align the provided images, I used Orb key points and various openCV algorithms, which were inspired mainly by the labs and partially from the openCV official documentation.

Then I wrote a function that searches for jpg/jpeg images inside a given directory and then applies the sift transformation.

After the alignment of all images, I wrote a function that finds half of the dominos inside an image using template matching, once a template was found (half a domino) the coordinates of that template are saved and covered such that the algorithm can find new pieces and not take in consideration old ones.

The algorithm is constructed such that it starts with step one, which in theory should have one single domino piece. And moves on to the next images of the match where it again uses the stored information about previously found dominos to hide them again, therefore the algorithm will always find 2 halves of a domino no matter in which step he finds itself in.
Lastly, the information about the domino is divided by the theoretical height and width of a cell to find in which row/column it exists.