CMPUT 307 Fa2016 Lab 5

Lab 5: Matlab - getting data from video

Due: Mid-night on Oct 16 (Sunday)

Assignment:

1. Read the given video using matlab (2 marks)
2. Get individual frames of the video (2 marks)
3. Convert the frame into 'double' data type. (2marks)
4. Learn about the image storing in matlab and separate the red channel from the video and display the 20th frame. (2marks)
5. From the 20th frame, separate the blue channel from the video and invert it (white becomes black and black becomes white). Save the image as 'im1.jpg'(2 marks)
6. From the 20th frame, multiply the red channel and the inverted blue channel. Save the image as 'im2.jpg'. Hint: convert image back to uint8 before saving. Scale the image intensity suitably. (2marks)
7. Use 'im2bw' to highlight the red object from the video. Hint: use the image in 6 above. (2marks)
8. Obtain the centroid of the red object. (2marks)
9. Create an image file showing the trajectory of the centroid of the red object. Hint: accumulate the results of the whole video into one frame. Save the image as 'im3.jpg' (4 marks)

Note

1. The group names available at https://docs.google.com/a/ualberta.ca/spreadsheets/d/1QsUfclD_hWI5S3YzqIvOoCnJPuS2hYYfjbFaPOmO_Qo/edit?usp=sharing

What to submit:

1. The matlab file
2. All the images above.

to be zipped and submitted at "Lab 5 Submit" link on the course eClass web-page.