Indian Institute of Technology Delhi

COL 780 (Computer Vision)

Assignment 1

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1 Medial axis detection

1.1 Procedure

1. We first did background subtraction to track the moving stick.
2. We then did edge detections using canny, that uses Sobel operators internally.
3. We then used Hough transforms on the edge frame to get the lines.
4. We chose the top 2 lines of the output as they mostly represent the 2 edges of the stick.
5. Since we have the co-ordinates, we grew the median line of the top 2 lines of the Hough transforms.
6. On a crude estimate, we can see that the length of the moving stick is proportional to the total number of white pixels in the edge frame as the stick is the only thing that's moving.
7. We used this fact to control the length of the line.

1.2 Sample Videos

One can find the output videos on this link
https://drive.google.com/drive/folders/1cCfWP9iB-09uY44B5CbxSEsT16gkD5xk?usp=sharing

1.3 Running our code

Run the following command:
python assignment1.py video