Computer Vision

Assignment-5

Submission Date: 14 November, 2024

1. **Epipolar Geometry:** Take two images I1 and I2 from your mobile camera of same scene but some rotation and translation. Both the images must have some common scene. Now manually pick up some common points between these two images.
   a) Compute a **Robust** Fundamental Matrix between. Provide supporting arguments on why it's robust.
   b) Write a program that if one randomly clicks one any none point in image I1 the epipolar line is plotted in image I2 and vice a versa.
   c) Write a function that shows epipoles in e1 in image 1 and e2 image 2

2. **Optical flow:** Take a small say 1-2 mins selfie video, where each one of you is doing some random hand and body movement, for example, any PT exercise, dance steps, that involves moving hands and body towards left/ right, swing your arms up down, left/right, in different speeds.
   a) Determine SIFT features (from Lab 3), and compute color coded optical flow over the captured video for the moving features through different frames.
   b) Overlay the computed color coded optical flow frame by frame on black background to have your own optical flow dance video.

You are free to choose your optical flow algorithm but clearly write in and describe it in text file and attach the same.