IDC 410: Machine Learning

Spring Semester 2025-26

Assignment 05

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Submission: On or Before 17th February 2026

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1. Take a clean piece of A4 size sheet and draw a square of 15 cm x 15 cm. Draw an arbitrary triangle inside this square. Place this paper on a table and take a clean photograph of the square. (Make sure sides of square are parallel to x and y axis of the image)

Problem: a) Using image processing techniques; remove the noise in image if any, b) Identify all the straight-line segments using Hough transformations, c) find the absolute area of triangle in units of cm^2. d) Using Affine transformation techniques, rotate the original image (after noise removal) and store the rotated image. e) Using Affine transformation techniques, skew the original image (after noise removal) and store the skewed image.

Note:

1. You should write a program in modular form by writing your own functions for various tasks
2. As far as possible, the program should **NOT** make any functional calls from OpenCV OR any other libraries.