**DIGITAL IMAGE PROCESSING COURSE - 2021.FALL   
PRACTICE LABS**

**LAB 08. LANE DETECTION APPLICATION**

**Requirements**

1. Follow the instructions with the help from your instructor.
2. Finish all the exercises (given at the end of this document) in class and do the homework at home. You can update your solutions after class and re-submit all your work in the total submission together with the homework.
3. Grading  
   Total score = 50%\* In-class submission + 50% \* (Total submission) + Homework
4. Plagiarism check

If any 2 of the students have the same output images, then all will get zero for the corresponding exercises.

**INTRODUCTION**

In this Lab, you will try to apply some image processing techniques to build an application in detection lanes in traffic road, such as:

* Edge detection
* Line detection
* Hough Transform

**INSTRUCTIONS**

Look at article in the reference link below to learn more about the steps to build a lane detection model using OpenCV and Python

Reference: [Understanding Hough Transform With A Lane Detection Model (paperspace.com)](https://blog.paperspace.com/understanding-hough-transform-lane-detection/)

Test image:<https://github.com/Nigama-oss/Lane-Detection/blob/master/lane.jpg?raw=true>

Test video: <https://github.com/Nigama-oss/Lane-Detection/blob/master/test2.mp4?raw=true>

**EXERCISE**

**Ex8.1. Build the application to detect lane lines as in the article in the instructions**. The input is the test video, the output is the corresponding video with lane lines marked in colors.

**Ex8.2. Test the model for other frames. Save the results.**

Download the frames via this [link](https://drive.google.com/file/d/1e4cc4zFFna3Owyym6aq7ZXoquHA2l95O/view?usp=sharing)

Refer to this [article](https://www.analyticsvidhya.com/blog/2020/05/tutorial-real-time-lane-detection-opencv/) also

*Submit your code in practice class.*

**HOMEWORK 6**

Read and implement another technique for lane detection in the below article:

[Lane detection with OpenCV — Part 2 | by Luca Venturi | Nerd For Tech | Medium](https://medium.com/nerd-for-tech/lane-detection-with-opencv-part-2-efdad71e8819)