Workshop #2: **Object detection- Face detection**

Learning Outcomes:

Upon successful completion of this workshop, you will have demonstrated the abilities to:

- Understand the knowledge of object detection, face detection, Haar Cascade algorithm.
- Write a demo program for face detection: implement Haar Cascade algorithm.

Requirements:

Face detection is that identifies human faces in digital images. It refers to the psychological process by which humans locate and attend to faces in a visual scene. Face-detection algorithms focus on the detection of frontal human faces. Face detection is based on facial features such as eyes, eyebrows, nose, mouth, jaw. In this assignment, students are asked to write a simple face detection program with Haar Cascade. Details of the functions are described below:

Function : Haar Cascade. The algorithm uses edge or line detection features. These features on the image make it easy to find out the edges or the lines in the image or to pick areas where there is a sudden change in the intensities of the pixels. The haar calculation is done by finding out the difference of the average of the pixel values at the darker region and the average of the pixel values at the lighter region. If the difference is close to 1, then there is an edge detected. You are required to implement the Haar Cascade algorithm to perform face detection in the input image.

Evaluation Criteria

No	Criteria	Requires	Mark	Note
1	Write a program with graphics interface	- Create an application with an interface to perform mouse actions. - Choose the input image - Click detect button to detect faces in the input image	2	Executed in the background when the program is running.
2	Function: Face Detection	Write a program for face detection	8	Using mouse or keyboard
3	Total		10	