REAL-TIME OBJECT DETECTION THROUGH DEEP LEARNING – SCALED YOLO V4

<u>ABSTRACT</u>

Object detection is an advanced form of image classification where a neural network predicts the objects in an image and points them out in the form of bounding boxes. Object detection thus refers to the detection and localization of objects in an image that belong to a predefined set of classes. Tasks like detection, recognition, or localization find widespread of applicability in real-world scenarios, making object detection (also referred as object recognition) a very important subdomain of Computer Vision which is characterized by its strong capability of feature learning and feature representation compared with the traditional object detection methods. Real time object detection and tracking are important and challenging tasks in many computer vision applications such as video surveillance, robot navigation and vehicle navigation. Object detection involves detecting the object in sequence of videos.

Every tracking mechanism requires object detection technique either in each frame or when an object appears newly on the video sequence. Object tracking is the process of locating an object or multiple objects using either static or dynamic camera. The availability of high-powered computers, high quality and inexpensive video cameras will increase need for automated video analysis. It has generated a great deal of interest in object detection and tracking algorithms. Even though high-powered computers are used for object detection and tracking algorithm, most of the object detection algorithms such as background subtraction, temporal difference, foreground extraction and simple differencing requires long time to detect object, requires more storage space and no robustness against illumination changes. Recently computer vision research has addressed the Multiple objects detection and tracking in dynamic environment.

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