**Assignment\_11**

1. What do REGION PROPOSALS entail?

**Ans: A Region Proposal Network, or RPN, is a fully convolutional network that simultaneously predicts object bounds and objectness scores at each position. The RPN is trained end-to-end to generate high-quality region proposals**.

1. What do you mean by NON-MAXIMUM SUPPRESSION? (NMS)

**Ans: Non Maximum Suppression (NMS) is a technique used in numerous computer vision tasks. It is a class of algorithms to select one entity (e.g., bounding boxes) out of many overlapping entities. We can choose the selection criteria to arrive at the desired results**.

1. What exactly is mAP?

**Ans: To evaluate object detection models like R-CNN and YOLO, the mean average precision (mAP) is used. The mAP compares the ground-truth bounding box to the detected box and returns a score. The higher the score, the more accurate the model is in its detections**.

1. What is a frames per second (FPS)?

**Ans: FPS (Frame Per Second) defines how fast your object detection model process your video and generates the desired output. The first step for any custom object detection is to grab images for labeling**.

1. What is an IOU (INTERSECTION OVER UNION)?

**Ans: IOU(Intersection over Union) is a term used to describe the extent of overlap of two boxes. The greater the region of overlap, the greater the IOU. IOU is mainly used in applications related to object detection, where we train a model to output a box that fits perfectly around an object.**

1. Describe the PRECISION-RECALL CURVE (PR CURVE)

**Ans: A PR curve is simply a graph with Precision values on the y-axis and Recall values on the x- axis. In other words, the PR curve contains TP/(TP+FN) on the y-axis and TP/(TP+FP) on the x-axis. It is important to note that Precision is also called the Positive Predictive Value (PPV).**

1. What is the term "selective search"?

**Ans: Selective Search is a region proposal algorithm used in object detection. It is designed to be fast with a very high recall. It is based on computing hierarchical grouping of similar regions based on color, texture, size and shape compatibility.**

8. Describe the R-CNN model's four components.

What exactly is the Localization Module?

**Ans: Localization is the adaptation of a product or service to meet the needs of a particular language, culture or desired population's "look-and-feel." A successfully localized service or product is one that appears to have been developed within the local culture.**

1. What are the R-CNN DISADVANTAGES?

**Ans: The R-CNN model has some drawbacks:**

**It is a multi-stage model, where each stage is an independent component. ...**

**It caches the extracted features from the pre-trained CNN on the disk to later train the SVMs. ...**

**R-CNN depends on the Selective Search algorithm for generating region proposals, which takes alot of time.**