

Displaying and Capturing Profile using Object Detection YOLO and Deeplearning Data Models and the Measurement between the Object

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Abstract - Using the Classes we create a set of datamodels to classify the image, Capturing the images using the Object detection concept of You Only Look Once(YOLO). The Object distance measurement for the detection of the object read in the frame of the video. Once the Classification is done using the Datamodels for custom dataset using the deep learning, We will be able to classify and display the description of the object detected and also the capstone for future complex detail's.

Key Words: Object detected, Frame, Yolo, custom datasets

1. INTRODUCTION

Creating our own dataset using the pretrained Neural Network in the CoCo. The Coco data model contains 80 different image category. The Training of the dataset over the Image is the main concern in displaying the Profile of the Image frame over the video. While using Capstone we can detect the number of person in an image with particular feature and threshold can be set using the YOLO framework.

1.1 Tensorflow

The Tensor flow is used for building the neural network, The nueral network consist of many layers for training the model, the dense layer help in for the output that display the matched pattern of the predicted image.

The object detection within a dataset uses the concept of hidden layer that is the node's .The concept of training the model, the concept of testing and segmentation of the image frame. The Model need's to be trained for the accuracy.

1.2 Training the model

The machine learning part of the project is training the model .The dataset are trained in the supervised training .The data are flatten out and the "hard code one" Concept is used for creation of the "1d" array.

2. Training and Testing Set

The arrays of the image data are mentioned in terms of the metrics. The metrics are termed into the labels and features.

The labels are used for the hard coded one concept and the features are used to flatten out or normalize to between 0 and 1 for the concept of feeding into the Train set and Testing set .Based on the normalization of the data, evaluation of the model is done that is the accuracy, precision, recall and f1-score .

Table -1: Example: Evaluation of the model using the classification report

Accuracy and loss prediction table				
Index number	Precision	Recall	F1-score	Support
0	0.89	0.81	0.81	1000
1	0.99	0.99	0.82	1000
2	0.92	0.82	0.98	1000
3	0.72	0.98	0.91	1000

The different layer of the model that is made, the convolution and the maxpooling 2d sampling will cause the accuracy and the f-1 score to be predicted using the concept of hidden layer.

The Classes of the image for the classification report is to be made so that the neural network works accordingly .The more complex is the image, the more layers is to be needed by the model to process the prediction for the unidentified image and produce the accuracy.

The layers defined for detecting the object are mentioned in the above diagram.

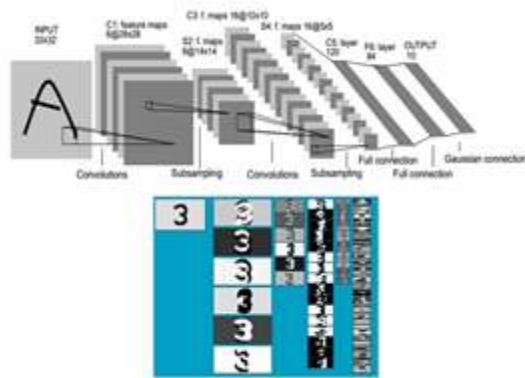


Chart -1: Subsampling and pooling

The concept of the Artificial neural network and the hidden layer for the purpose of mathematical evaluation of the pixel within the frame is used in this case

Distance measurement:-

After detecting the object in the frame ,the last step that remains is the Distance of the object from the camera.The blurring of the frame image takes place in the background and further generate the grayscale image that is used for the pixel detection and edge and contour detection that need's to be labeled within the boundary box . The algorithm for the similarity triangle is used for the measurement of the distance and the most important part is the setting of the calibration length that need's to be focused.

3. CONCLUSION

Thus by using the above concept we will be creating a dataset based on the frames of image captured within a particular distance that need's to be used for the object detection ,we can use the built in coco model to reference the image based on the class-classifier because that contains almost 150 million images based on the 80 categories defined by the Microsoft team .Almost all open source project maker's make use of the Coco dataset and they are mostly used for object detection and segmentation.

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