

# Notes -YOLO 9000

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## **What is the state of data available for the detection applications and classification applications?**

The general purpose object detection should be fast, accurate and able to recognize a wide variety of objects. Most detection frameworks are constrained to a small set of objects. Object detection datasets are limited when compared to the datasets for other tasks like classification and tagging.

Detection datasets contain thousands to hundreds of thousands of images with dozens to hundreds of tags (or classes). But Classification datasets have millions of images with tens or hundreds of thousands of categories.

## **What is the method proposed to increase the classes of detection dataset?**

The research paper proposes dataset combination method and joint training algorithm to train a model on more than 9000 classes from ImageNet as well as detection data from COCO.

## **What are the short comings of previous version of YOLO?**

Relative to start-of-art detection systems, (Fast R-CNN) YOLO makes a significant number of localization errors. YOLO also has low recall compared to region proposal methods. So this paper's YOLO is focused more on improving the recall and localization while maintaining the classification accuracy.

## **What are the new proposals that can be integrated to improve the performance of YOLO V1.0?**

1. Batch Normalization
2. High Resolution Classifier
3. Convolutional with Anchor Boxes
4. Dimension Cluster
5. Direct Location Prediction
6. Fine-Grained Features
7. Multi-Scale training