Object Detection Based on YOLO

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Deep learning in the computer vision field is developing at a rapid pace. Many car industries are combining computer vision algorithms to make intelligent vehicles such as driverless cars. However, driverless cars are not ubiquitous because it is hard to detect objects around the car correctly. Therefore, Autonomous vehicles are hard to make real-time and right decisions. To decrease the car accident rate and to protect human beings, a good object detection algorithm that can convey accurate information to humans and computers is necessary. YOLO (You Only Look Once) is one of the object detection algorithms and plays an essential part in helping driverless cars "see" the objects.

By the end of this project, we hope to have successfully implemented the YOLO object detection algorithm with Pytorch. We propose to utilize the “Open Images 2019 Objection Detection” dataset by Google Research to both trains and test our implementation. Our primary goal is to achieve a YOLO implementation to its fourth version (v4) but we hope to experiment with the fifth version (v5) if possible. After we test our model on the given image test dataset, we will try to test the model using real-word images to check how the model performs. We will try to improve the accuracy of the YOLO algorithm.

Reference:

https://arxiv-org.proxy.lib.miamioh.edu/abs/2004.10934
Guide on YOLO v2, v3, and v4 implementation

https://www.kaggle.com/c/open-images-2019-object-detection/data
“Open Images 2019 Objection Detection” Dataset