

**Ahmedabad
University**

Machine Learning + Computer Vision Project

Group - 11

Week-3: Progress Report

Project title:

Evaluate performance of various object detection techniques (in case of small objects) on AU Drone dataset.

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Task performed in this week:

We have gone through the paper of Efficient DET : Scalable and efficient object detection and went through the simple implied code of Efficient DET and tried to understand it and tried to resolve most of the errors that we faced in the code as well as updating some part of the code as per our understanding. We still have not applied the original paper code which will be done by the following days. We will apply the different performance metrics on the model given in the paper which are Intersection over Union, different mAP's score and mean value metrics.

Summary of the research paper:

EfficientDet achieves results on the COCO object detection dataset, with a better trade-off between accuracy and efficiency compared to existing methods. The authors also provide pre-trained models that can be used for a variety of object detection tasks.

EfficientDet is a novel and efficient object detection architecture that achieves state-of-the-art performance on object detection tasks while being computationally efficient. It introduces a new type of backbone network, a new feature fusion method, and a new training method that uses reinforcement learning.

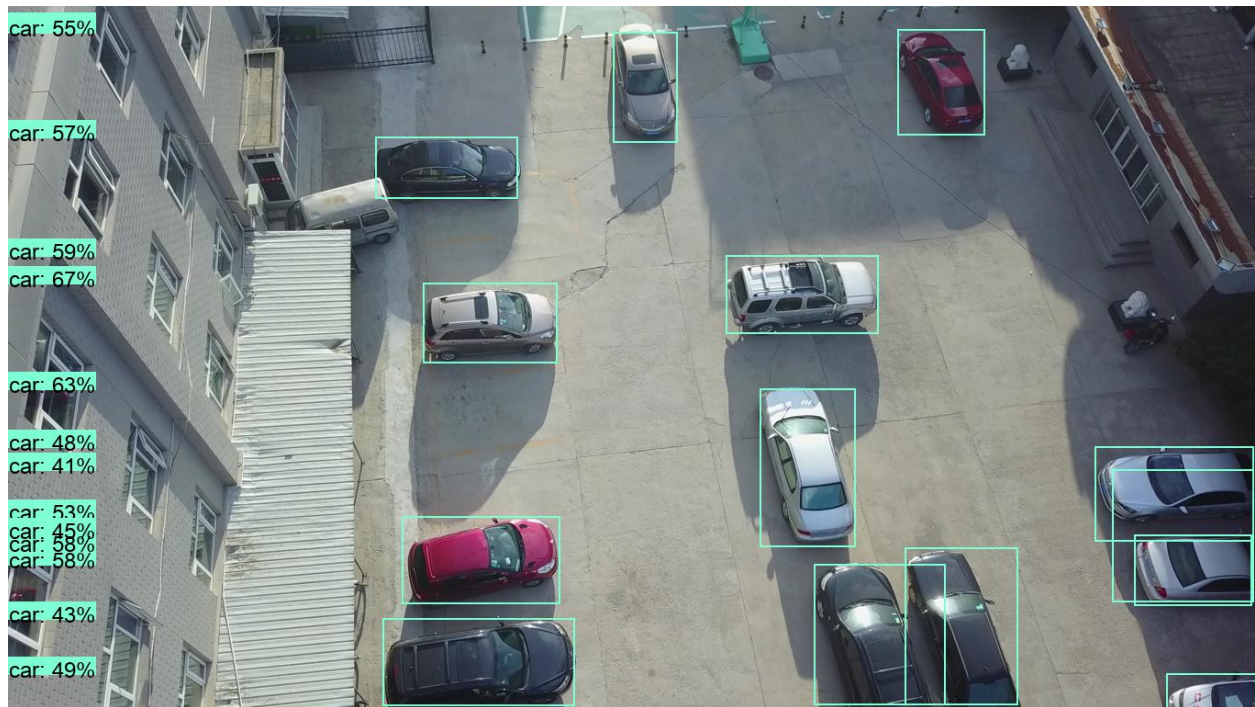
Problems faced during the week:

We rectify the error of the Efficient DET code and import all the necessary libraries but there is still the challenge of implementing the detection algorithm to chase small objects as still there are still some objects which undergoes misdetected. After the full code is implemented completely, we will use our performance metrics.

The task to be performed in the next week:

- Try to start understanding the coding part of this paper and other coding parts we need.
- Use vis-drone data on a simple object detection model to evaluate one performance matrix and for other visualization, which can help to understand the topic better for the mid-sem presentation.

Code outputs:



References:

- https://openaccess.thecvf.com/content_CVPR_2020/papers/Tan_EfficientDet_Scalable_and_Efficient_Object_Detection_CVPR_2020_paper.pdf
- <https://github.com/AarohiSingla/EfficientDet-Implementation/blob/main/tutorial.ipynb>
- <https://colab.research.google.com/drive/1UJ6B011M1N1uO9950VkdrXsYmDQLjJTg?usp=sharing>