

FCOS3D: Fully Convolutional One-Stage Monocular 3D Object Detection

Supplementary Materials

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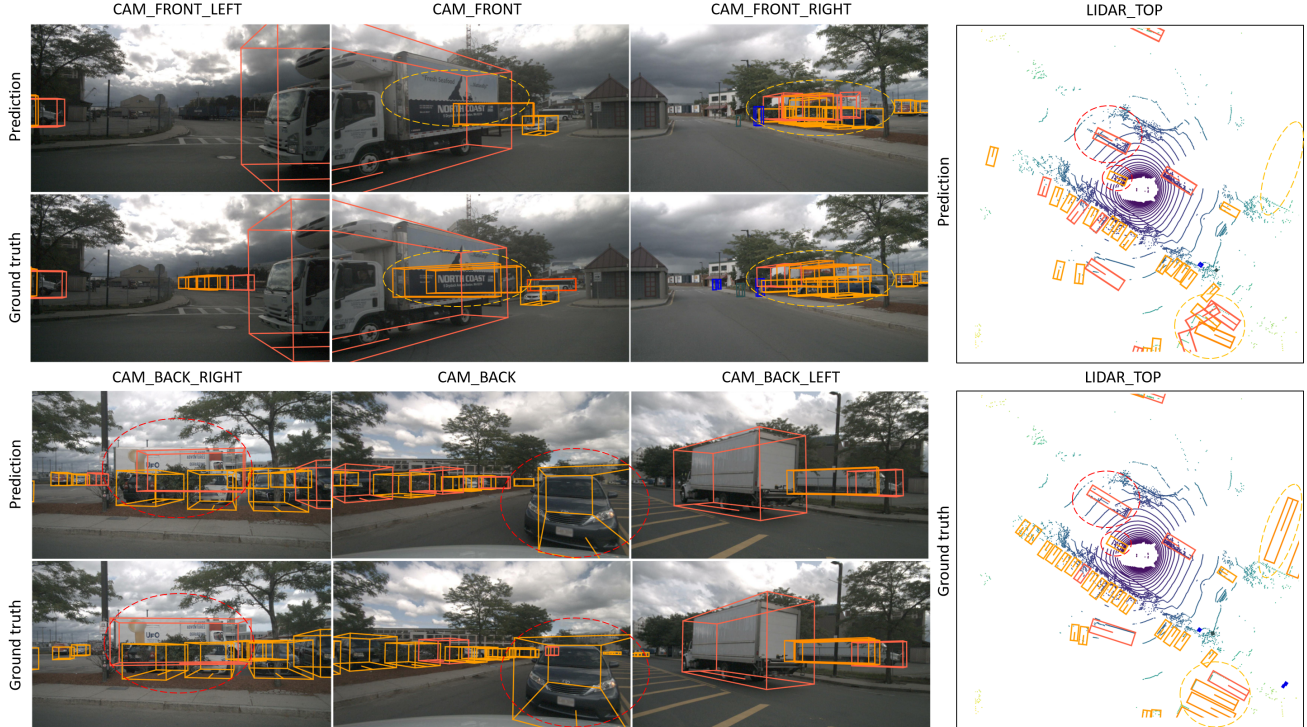


Figure 1: Failure cases. As shown in this figure, our detectors perform poorly, especially for occluded and large objects. We use yellow dotted circles to mark the failure case caused by occlusion while use red dotted circles to mark the inaccurate large objects predictions. The former problem is intrinsic, considering the ill-posed property of this task itself. So a direction to improve our method would be how to enhance the detection performance for large objects.

1. Failure Cases

In Fig. 1, we show some failure cases, mainly focused on the detection of large objects and occluded objects. In the camera view and top view, yellow dotted circles are used to mark the blocked objects that are not successfully detected. Red dotted circles are used to mark the detected large objects with noticeable deviation. The former is mainly manifest in the failure to find the objects behind, while the latter is mainly manifest in the inaccurate estimation of the size and orientation of the objects. The reasons behind the two failure cases are also different. The former is due to the inherent property of the current setting, which is difficult to

solve; the latter may be because the receptive field of convolution kernel of the current model is not large enough, resulting in low performance of large object detection. Therefore, the future research direction may be more focused on the solution of the latter.