Mid-Term Project: 3D Object Detection

Self-Driving Car Engineer Nanodegree

Submitted by:
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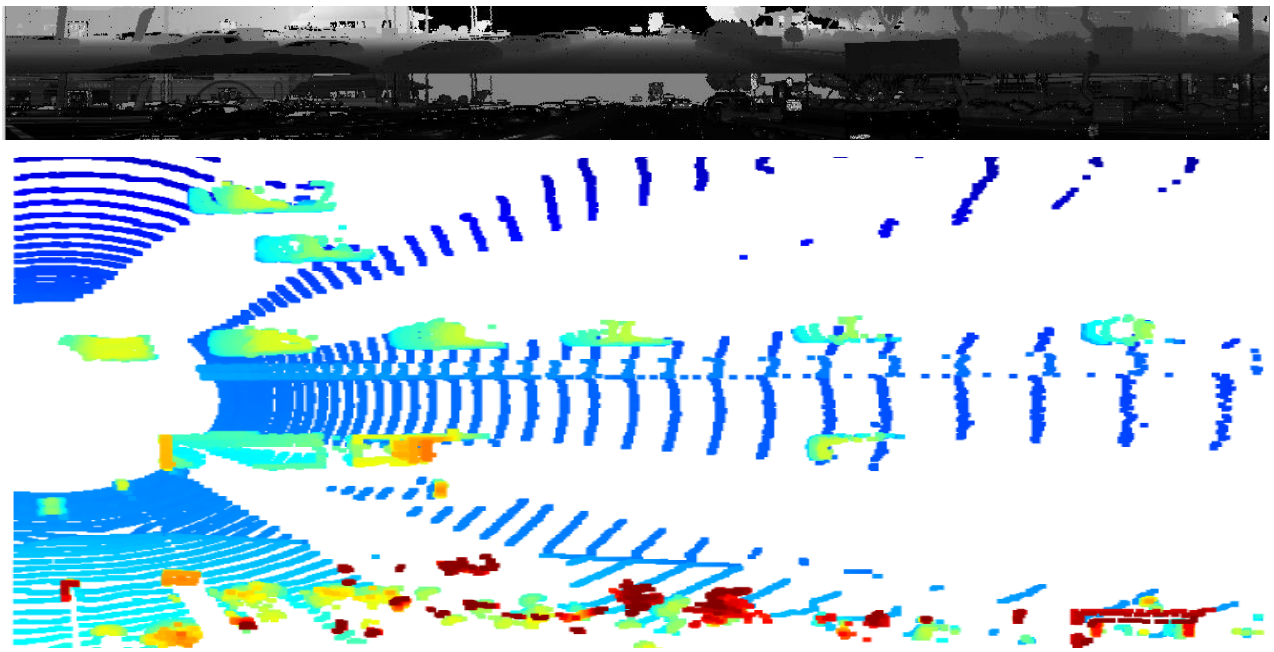
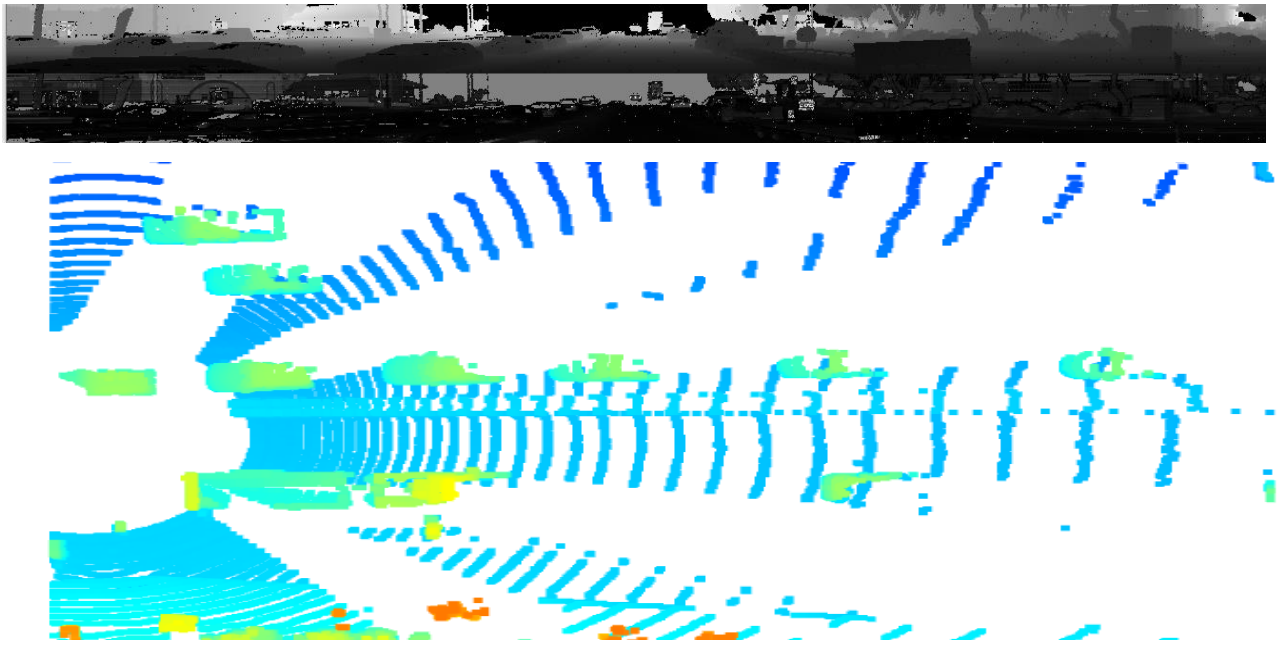
- ***Find and display 10 examples of vehicles with varying degrees of visibility in the point-cloud***

The waymo dataset that was used for below observations is ***"training_segment-10963653239323173269_1924_000_1944_000_with_camera_labels.tfrecord"***

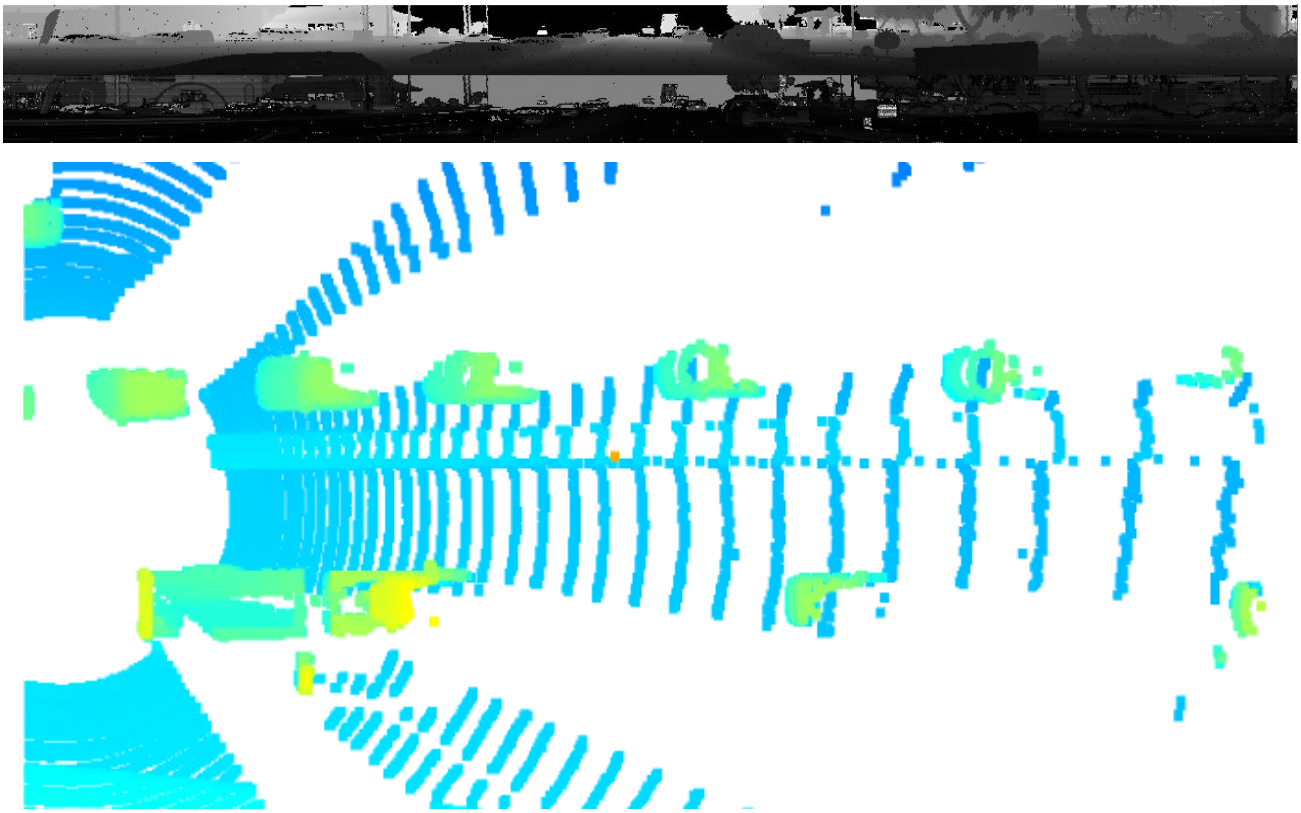
1. As it can be seen in the below image, reflection have higher intensity coming from windshield of car.



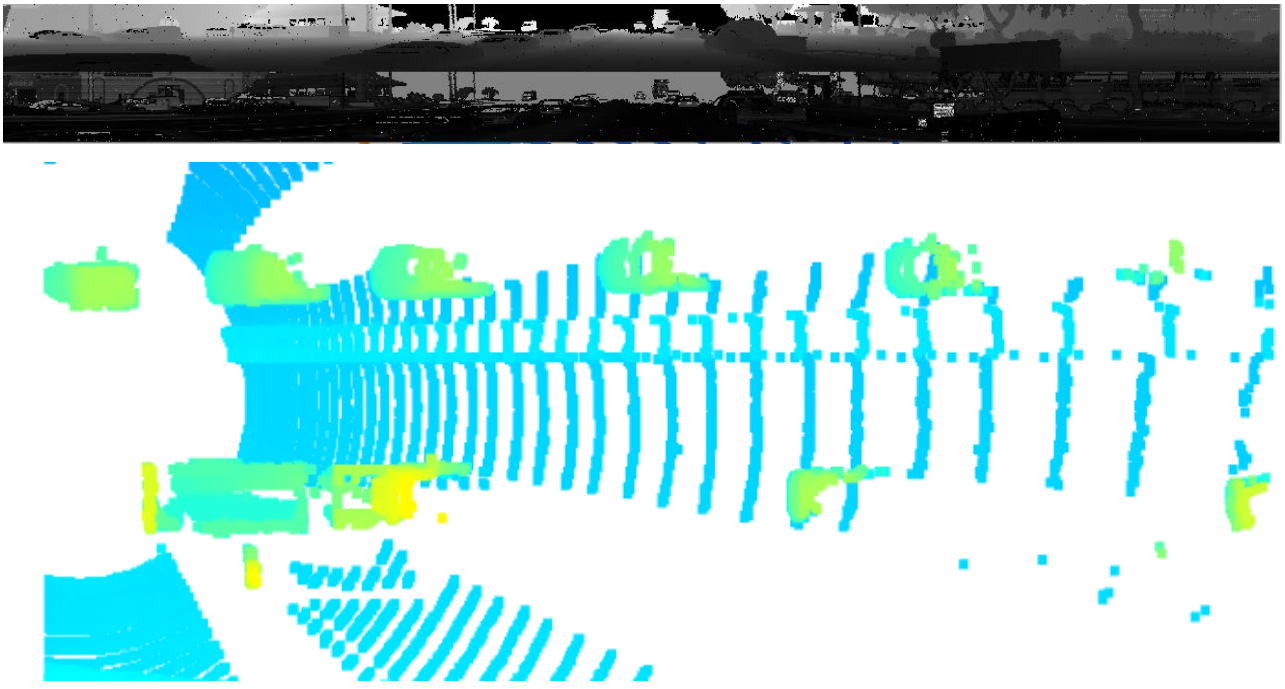
2. In the below image , the far left vehicle has the headlight visible in the intensity map



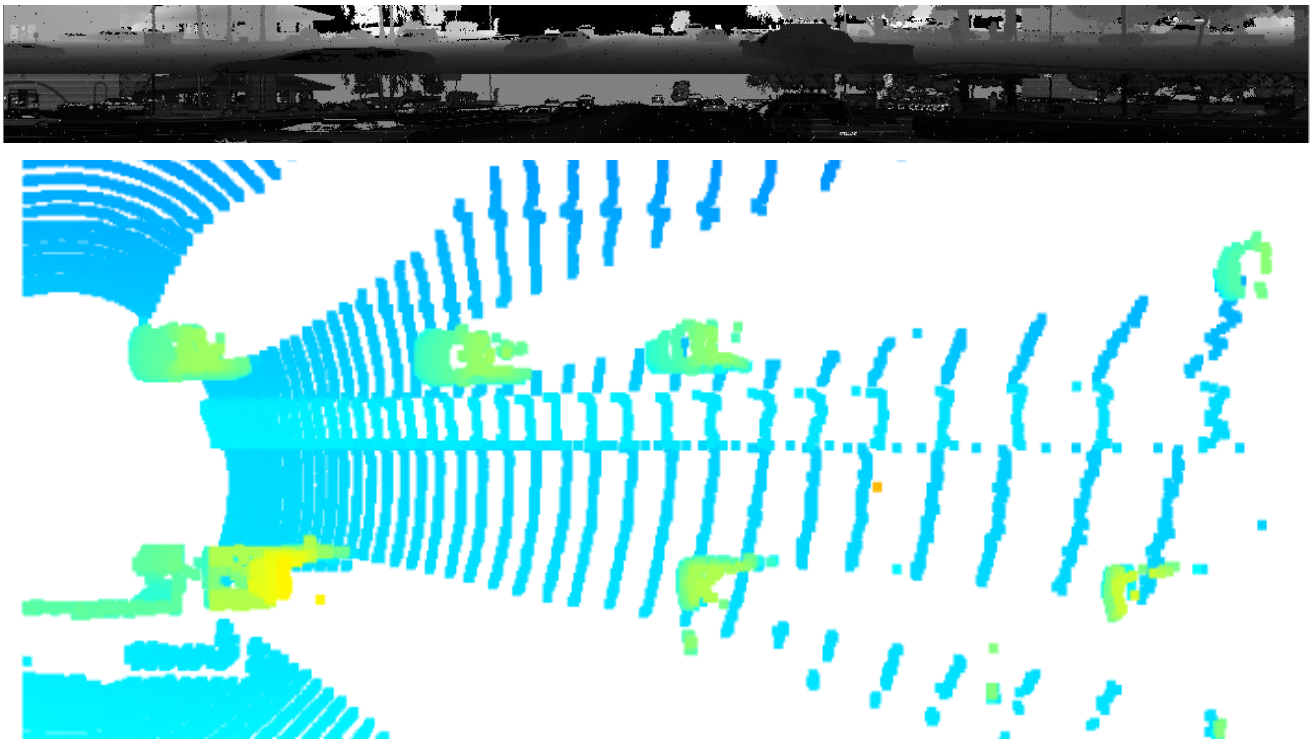
3. In the below image , the reflection from windshield is stably visible



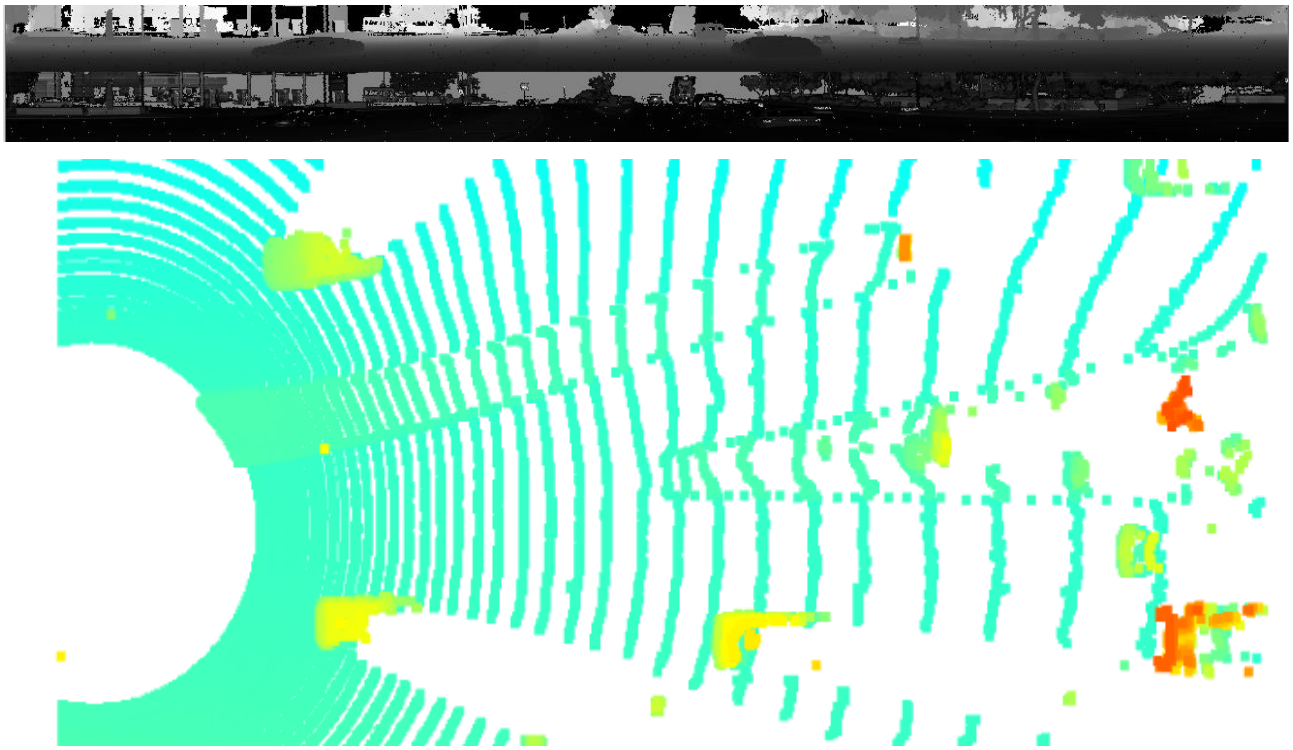
4. In the below image , the reflection from windshield is stably visible



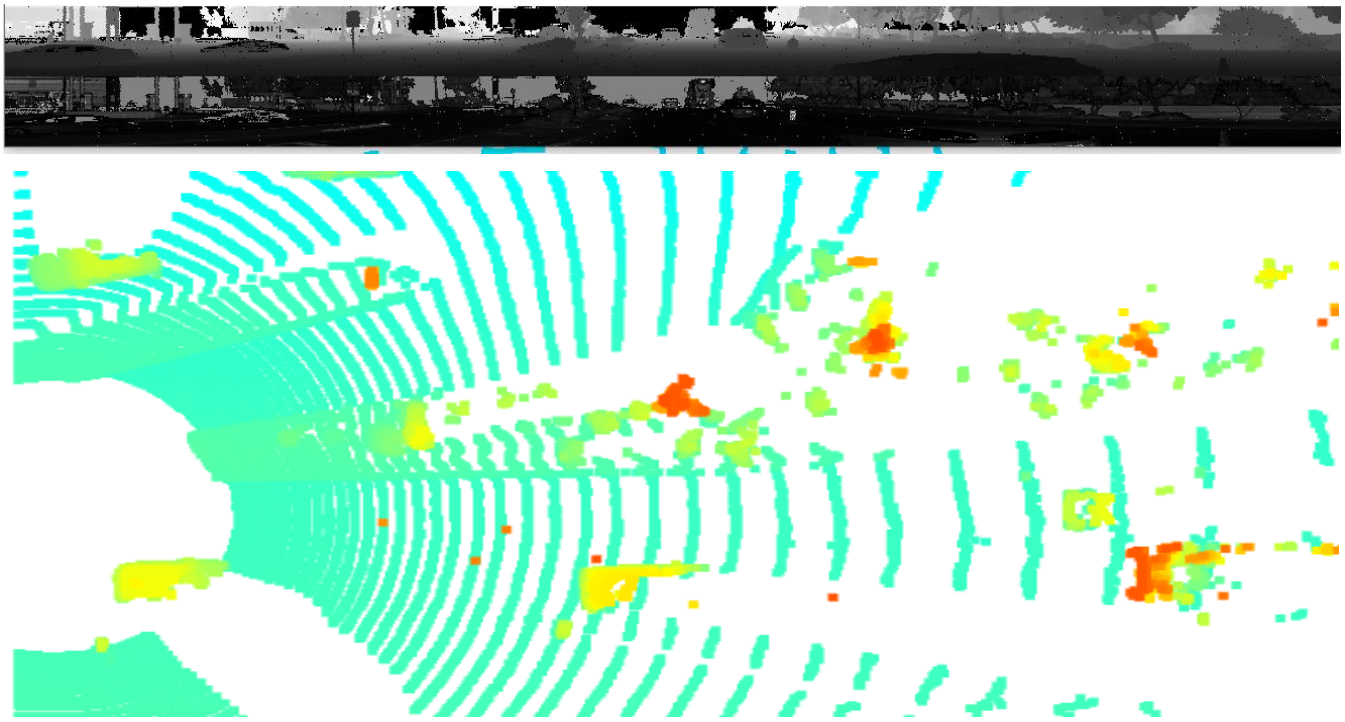
5. In the below image , the reflection from windshield is more visible for near left vehicle and the number plate is visible on the near right vehicle



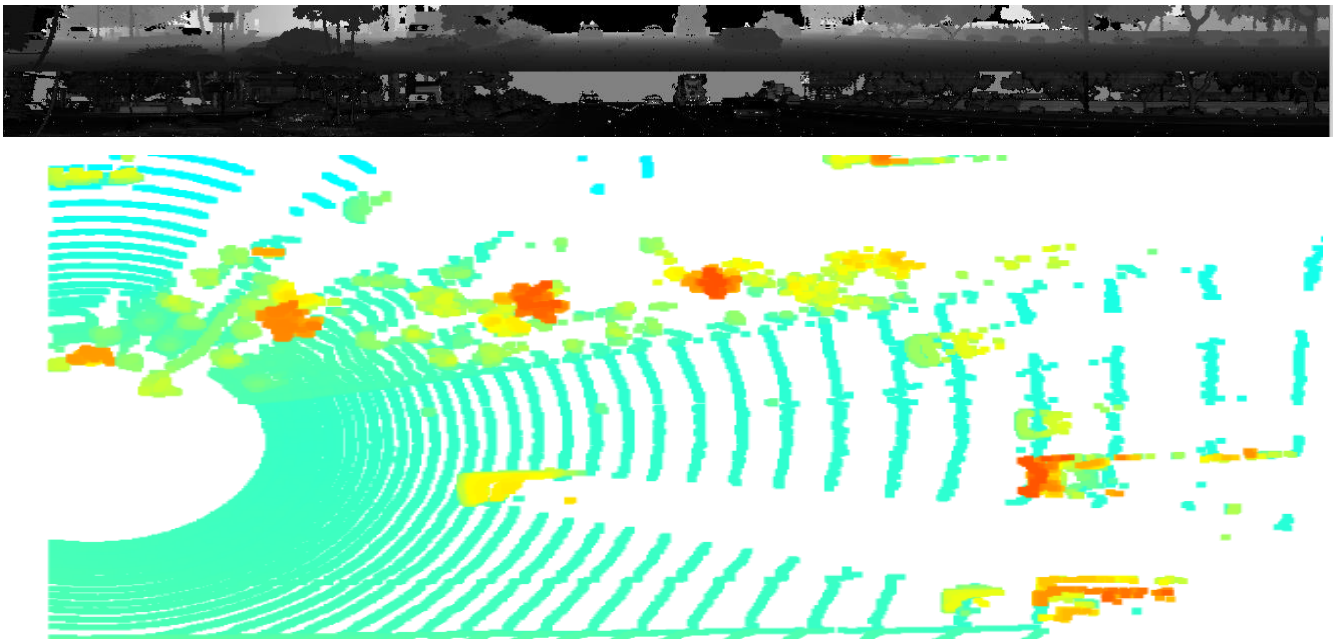
6. In the below image , the number plate and tail lights are visible on the near right vehicle



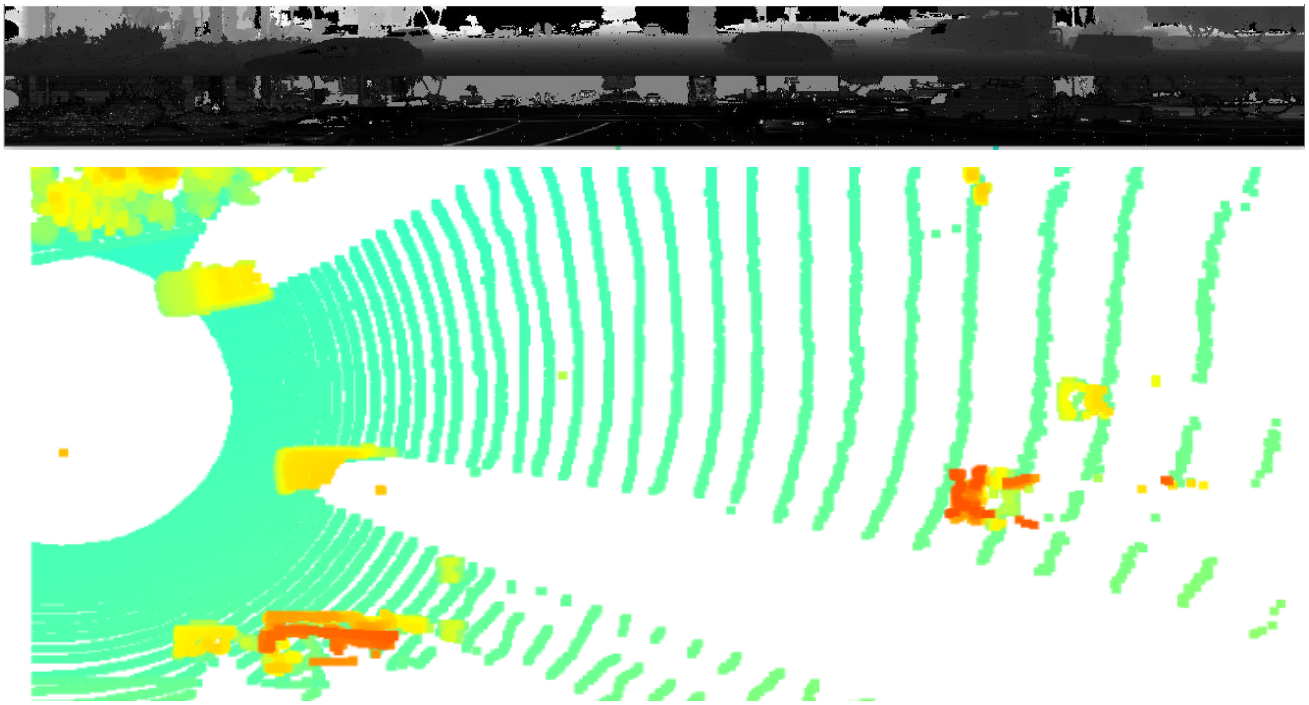
7. In the below image , the reflection from windshield is stably visible and also on the near left vehicle more reflection can be seen with higher intensity when the car's sideview is present



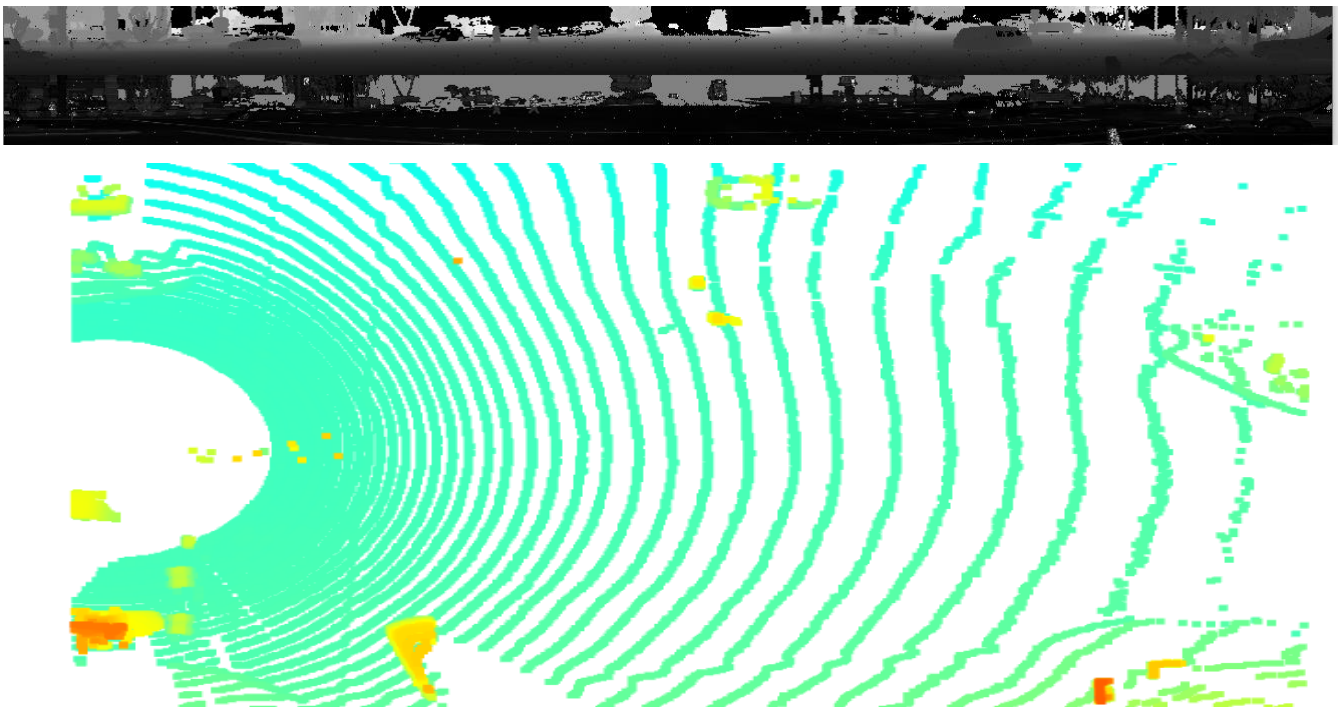
8. In the below image , the reflection from windshield of truck is stably visible on left side



9. In the below image , the reflection number plate and tail lights are visible from near left vehicle



10. In the below image , the reflection from windshield is stably visible



- ***Identify vehicle features that appear as a stable feature on most vehicles (e.g. rear-bumper, tail-lights) and describe them briefly. Also, use the range image viewer from the last example to underpin your findings using the lidar intensity channel.***

  Most of reflections from vehicles have higher intensity coming from

  1. Windshield of the car- most stable feature
  2. Headlights of the car
  3. Tail lights of the car – stable feature
  4. Number plate of the car – stable feature when in close range

     Most of the explanation for above observations were given along with the scene screenshot