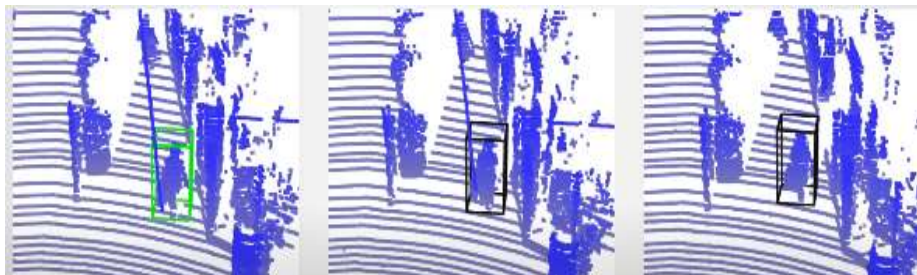


CXTrack : Improving 3D Point Cloud Tracking with Contextual Information

What is the problem?

- 3D single object tracking plays an essential role in many applications, such as autonomous driving.
- It remains a challenging problem due to the large appearance variation and the sparsity of points caused by occlusion and limited sensor capabilities.
- Contextual information across two consecutive frames is crucial for effective object tracking.



What has been done earlier?

SC3D, P2B, and motion-centric were used before, but they faced the following problems –

- The main problem addressed here is the large appearance variation of the target and the sparsity of 3D point clouds caused by occlusion and limited sensor resolution.
- Comparing the target frame with the previous frame was time consuming.

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What are the remaining challenges?

Remaining Challenges :

- Although CXTrack is robust to intra-class distractors, it fails to predict accurate orientation of the target when the point clouds are too sparse to capture informative local geometry or when large appearance variations occur.
- Model may suffer from performance degradation if trained with 2Hz data and tested with 10Hz data because the scale of the displacement differs significantly.

