Table 1: **3D object Detection Performance Comparison with Camera-Radar fusion models** on the nuScenes validation dataset. The baseline model is trained with ResNet and PointPillars backbone.

Sparsity	80%		90%	
	mAP	NDS	mAP	NDS
BEVfusion-R [No Pruning]	40.3	50.1	-	-
ProPr	35.8	43.6	32.4	40.1
AlterMOMA (Ours)	**38.5**	**48.3**	**35.2**	**44.3**

Table 2: **3D multi-object tracking (MOT) Performance Comparison** on the nuScenes validation dataset. The baseline model is trained with SwinT and VoxelNet backbone.

Sparsity	80% AMOTA	90% AMOTA
BEVfusion-mit [No Pruning]	68.2	-
ProPr	65.2	61.4
AlterMOMA (Ours)	**67.1**	**64.5**

Table 3: **3D object Detection Performance and Inference Speed Comparison with the structure pruning methods** on the nuScenes validation dataset. Note that baseline model is BEVfusion-mit with ResNet101 and SECOND as backbone and inference is tested on the RTX3090.

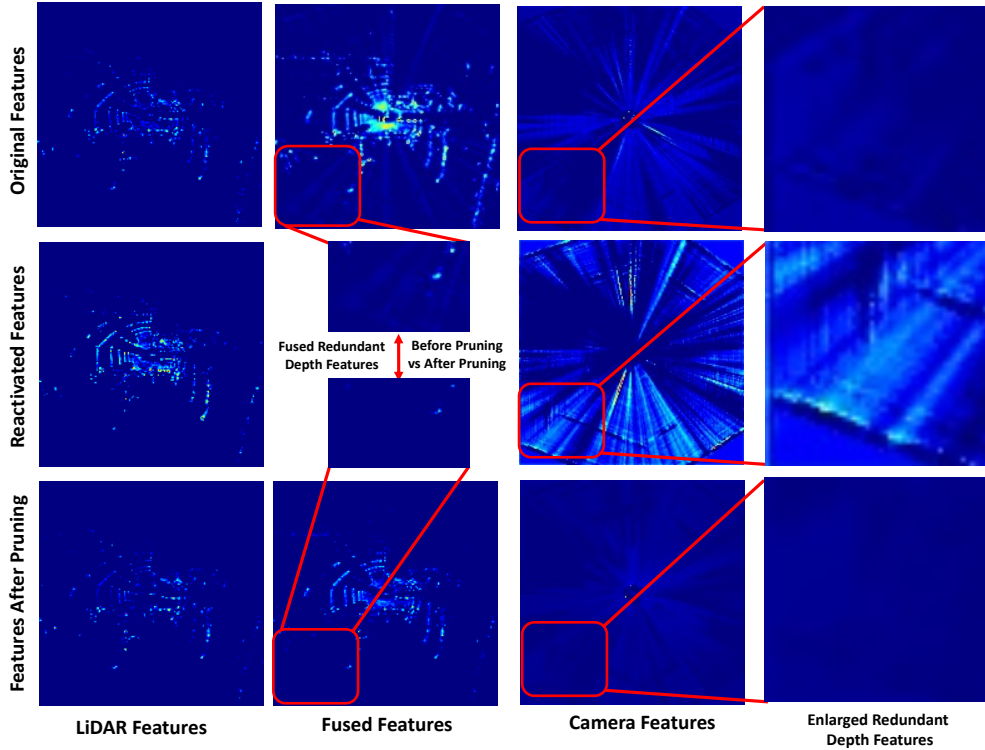| Sparsity	ResNet101 + SECOND			
	mAP	NDS	GFLOPs($\downarrow$ %)	Inference time(ms)
BEVfusion-mit [No Pruning]	64.6	69.4	610.66	124.04
AlterMOMA-30% (Ours)	**65.3**	**69.9**	**420.13 (31.2)**	106.39
AlterMOMA-50% (Ours)	**64.5**	**69.5**	**264.42 (56.7)**	87.46

Figure 1: **Visualization of the Reactivated Redundant Features**: The figure illustrates the features of different modalities at each stage of the entire pruning process of AlterMOMA, including LiDAR features, camera features and fused features in the states of original (before masking), reactivated (after reactivation), and pruned (after pruning with AlterMOMA). The fourth column provides enlarged views of crucial redundant parts of the camera features. Notably, due to masking one side of backbones during reactivation, there are no fused features within reactivated states. Specifically, despite the absence of distant objects, camera features still provide some redundant depth features, as shown in the fourth column. These redundant parts of the original camera features are retained in the subsequent original fused features after fusion. To address these redundant depth features, AlterMOMA reactivates these redundant parameters during the reactivation phase, as shown in the middle row images of the fourth column. These redundant depth features are then pruned from both fused features and camera features, as observed by comparing the enlarged fused features in the middle row images of the second column and the pruned camera backbone features in the third and fourth columns of the third row.