# Supplementary Materials: GSLAMOT

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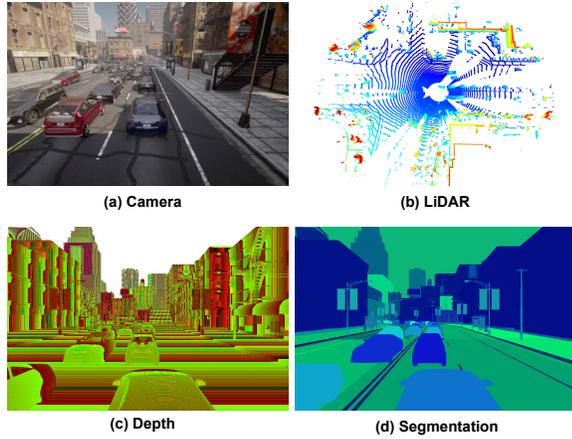


**Figure 2: The sensor data in Traffic Congestion Dataset.**
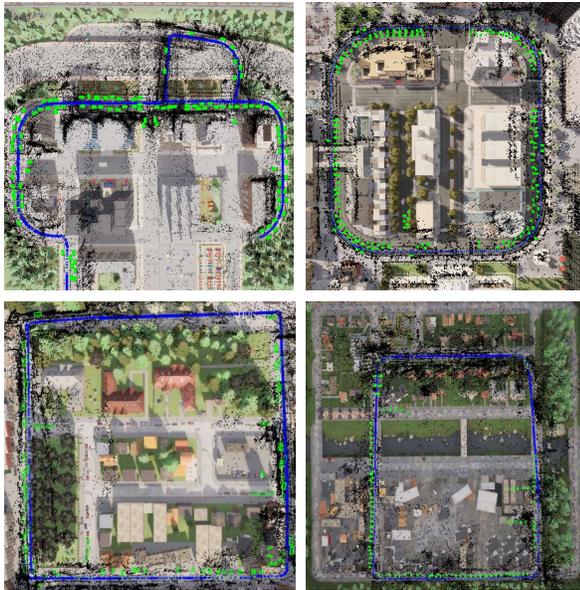


**Figure 3: The examples of the maps in Traffic Congestion dataset and the outputs of GSLAMOT. Blue points represent ego-motion trajectories, green boxes represent tracklets, and black points represent map points.**

## 1 SYSTEM DETAILS

Several hyperparameters are involved in our system, . Here are the values used in our experiments provided as references. When constructing the Tracklet Graph (TG) and the Query Graph (QG), the distance threshold $L$ is 5m and the neighborhood number $K \geq 3$. In Multi-criteria Star Graph Association (MSGA), the threshold $\tau$ of consistency is set to be 0.5.

## 2 TRAFFIC CONGESTION DATASET

We developed the Traffic Congestion Dataset (TCD) to address simultaneous localization, mapping, and tracking under highly dynamic and congested traffic conditions. We collected data from multiple simulated city maps (Figure 1). Our dataset follows the same organization pattern as KITTI[1], facilitating quick adaptation and use. We provide ground truth for the ego vehicle's poses and the 3D detection boxes for vehicles within the surrounding field of view, along with their global IDs. In addition, we provide depth maps, semantic segmentation maps, and instance segmentation maps to support future research in perception and decision-making tasks. An example of the sensor data is shown in Figure 2.



**Figure 1: The maps and scenes of Traffic Congestion Dataset.**

## REFERENCES

[1] Andreas Geiger, Philip Lenz, and Raquel Urtasun. 2012. Are we ready for autonomous driving? the kitti vision benchmark suite. In *2012 IEEE conference on computer vision and pattern recognition.* IEEE, 3354–3361.