Supplementary Materials:
Asymmetric Event-Guided Video Super-Resolution

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OVERVIEW

This supplementary document is organized as follows:

Section 1 provides more visual results.

Section 2 provides discussions of the limitations of the proposed method.

1 MORE VISUAL RESULTS

We present additional visual comparisons in Figure 1 and Figure 2. It is evident that our proposed approach yields superior visual results.

2 LIMITATIONS

While our proposed method achieves superior results for asymmetric event-guided VSR, it encounters challenges in certain specific scenarios, such as reconstructing small objects with extremely low resolution, as illustrated by the failure case depicted in Figure 3.

Specifically, our method fails to recover the logo of the car. Additionally, due to the involvement of meticulously designed content hallucination modules and bidirectional recurrent cells in our approach, real-time computation is not feasible, posing significant challenges for deployment and application on terminal devices. In the future, we aim to explore the design of lighter-weight and more efficient modules tailored for asymmetric event-guided VSR.

Moreover, due to the limited computational resources available during the experimental phase, we may not have been able to cover the latest/higher-performing VSR methods for retraining and comparison. Hence, we plan to incorporate comparisons with more baseline methods in future work.

Furthermore, we intend to gather real-world data and apply our method to VSR reconstruction tasks. We believe our approach will provide insights into other asymmetric event-guided video restoration tasks. We are committed to further exploring these avenues in future research endeavors.
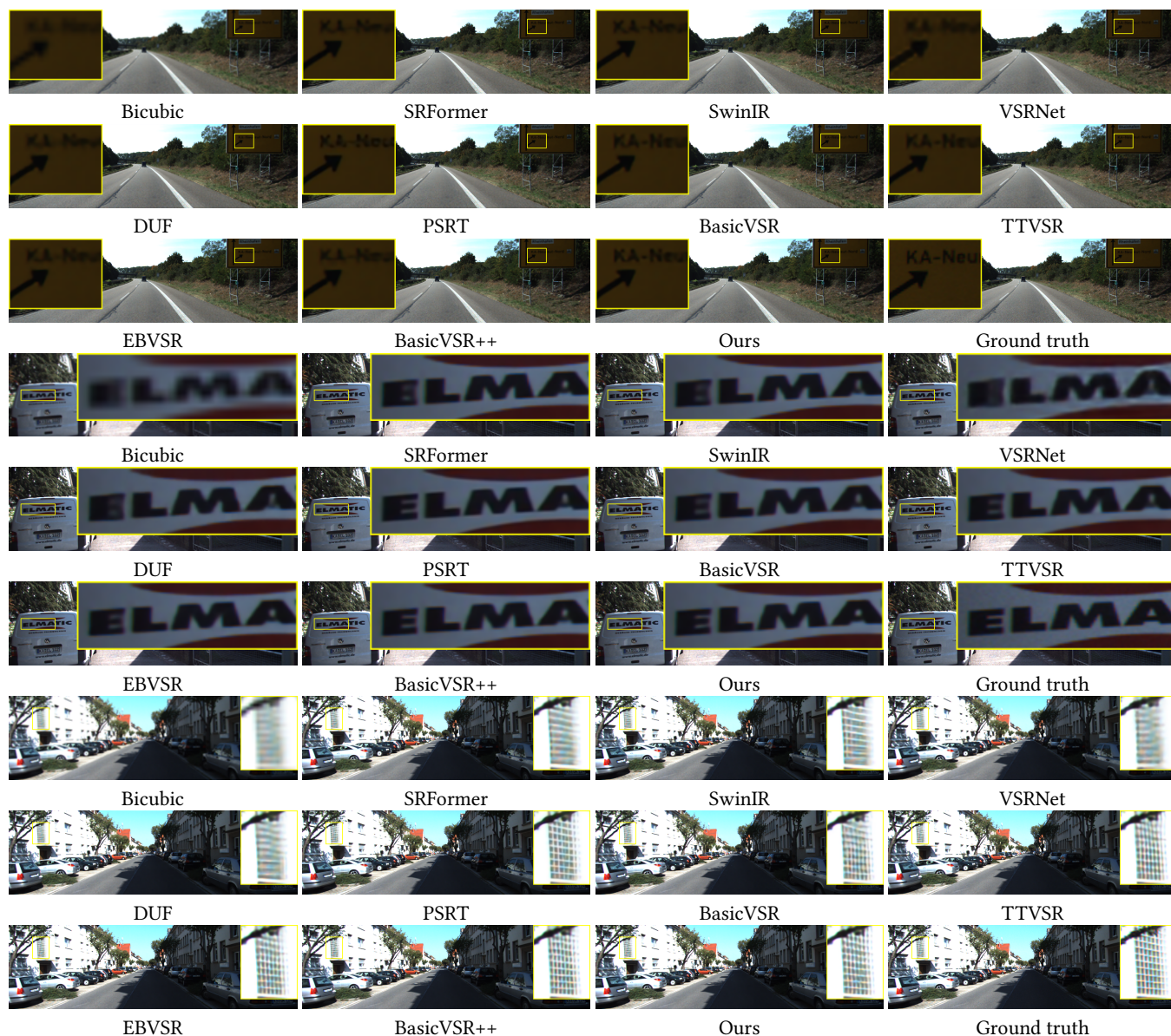
Figure 1: Visual comparison on the 4× asymmetric event-guided VSR task. Frames are from the <u>KITTI 2012</u> dataset.
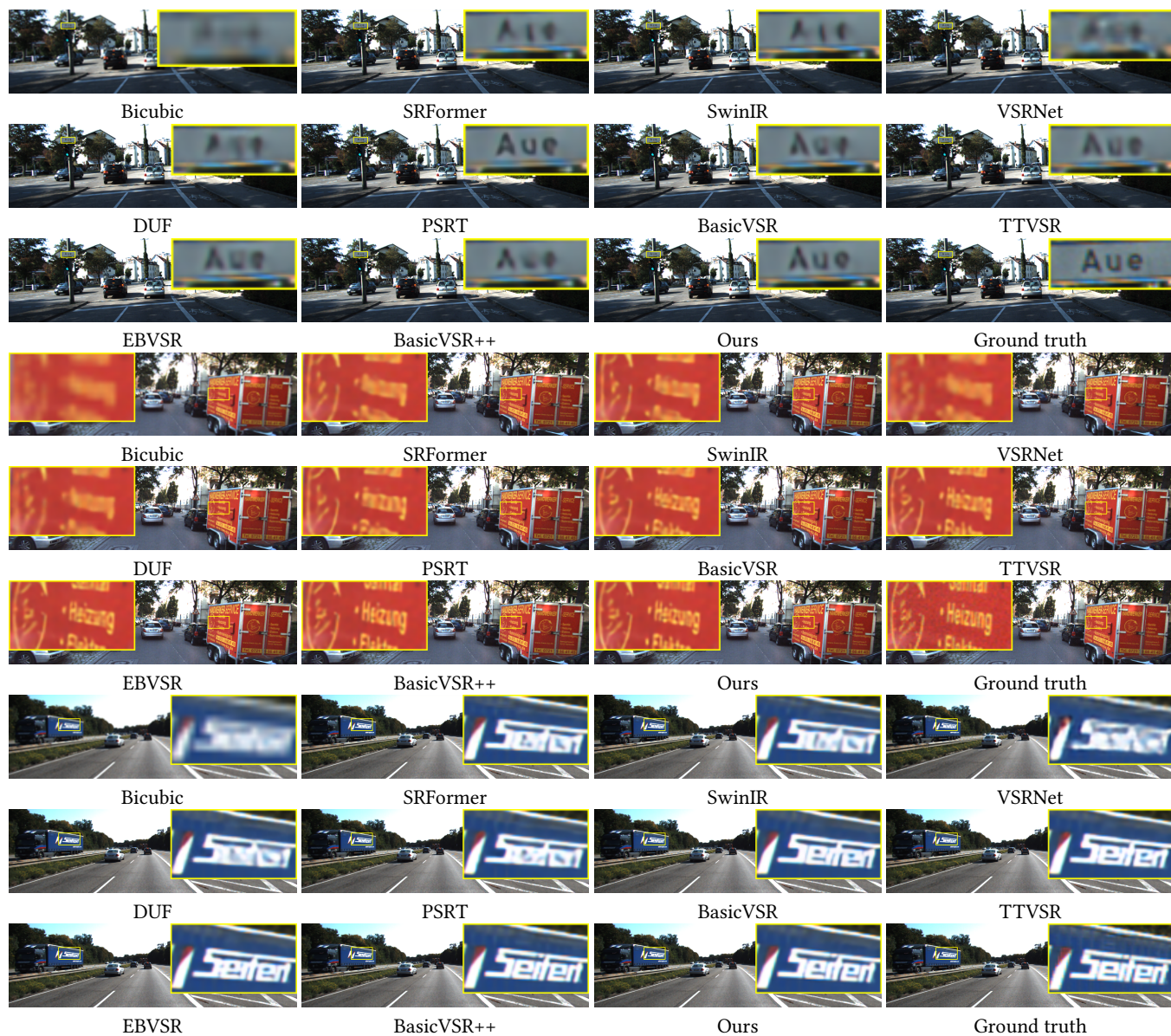
Figure 2: Visual comparison on the $4\times$ asymmetric event-guided VSR task. Frames are from the KITTI 2015 dataset.
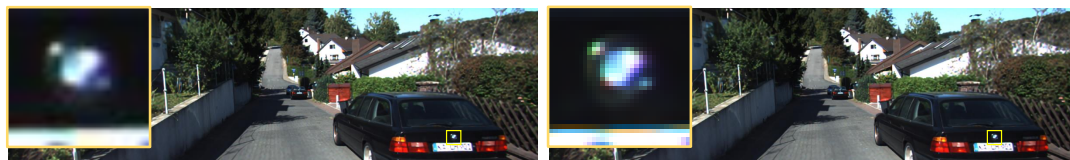

Figure 3: An example of the failure case. Left: the result generated by our method. Right: the result generated by the Bicubic operation.