Dual-Expert Consistency Model for Efficient and High-Quality Video Generation

Supplementary Material

7. Further implementation details

Stage division and expert switching. During inference, we empirically observe that evenly dividing the total steps between the two experts produces favorable results. With 8 or 4 total steps, we assign 4 or 2 steps to each expert, respectively. These steps are uniformly sampled within each sub-trajectory.

8. Additional Results

8.1. Compatibility with other acceleration techniques

DCM accelerates generation via sampling step reduction and is compatible with other methods like low precision computation and sparse modeling. For example, integrating SVG [60] (which leverages the sparsity of 3D full attention), yields an additional 1.33× speedup on top of DCM-Hunyuan while maintaining high fidelity (VBench 83.79%).

8.2. Generality of DCM

DCM addresses discrepancies in loss and gradient contributions across noise levels—a problem inherent to consistency distillation itself, not from any specific model architecture. Beyond HunyuanVideo [20] and CogVideoX [63], we further apply it to the recent WAN2.1-T2V [56]. DCM significantly accelerates inference while preserving comparable visual quality, as evidenced by VBench scores (baseline: 83.2%, DCM: 82.9%).

8.3. Visualization of the sampling process

To further verify the effectiveness of our method in semantic and detail synthesis, we visualize the results of each sampling step in a 4-step sampling process on HunyuanVideo. As shown in Fig. 11 and Fig. 12, our method achieves better performance in both semantic layout and fine details compared to competing methods.

8.4. More visual comparison results

The additional visual comparison results for HunyuanVideo are presented in Fig. 13, Fig. 14 and Fig. 15. More visual results of CogVideoX are shown in Fig. 16. The results indicate that our method maintains reliable fidelity across diverse models, styles, and content in video synthesis while also achieving acceleration.

Figure 11. Visualization of the sampling process of different methods.

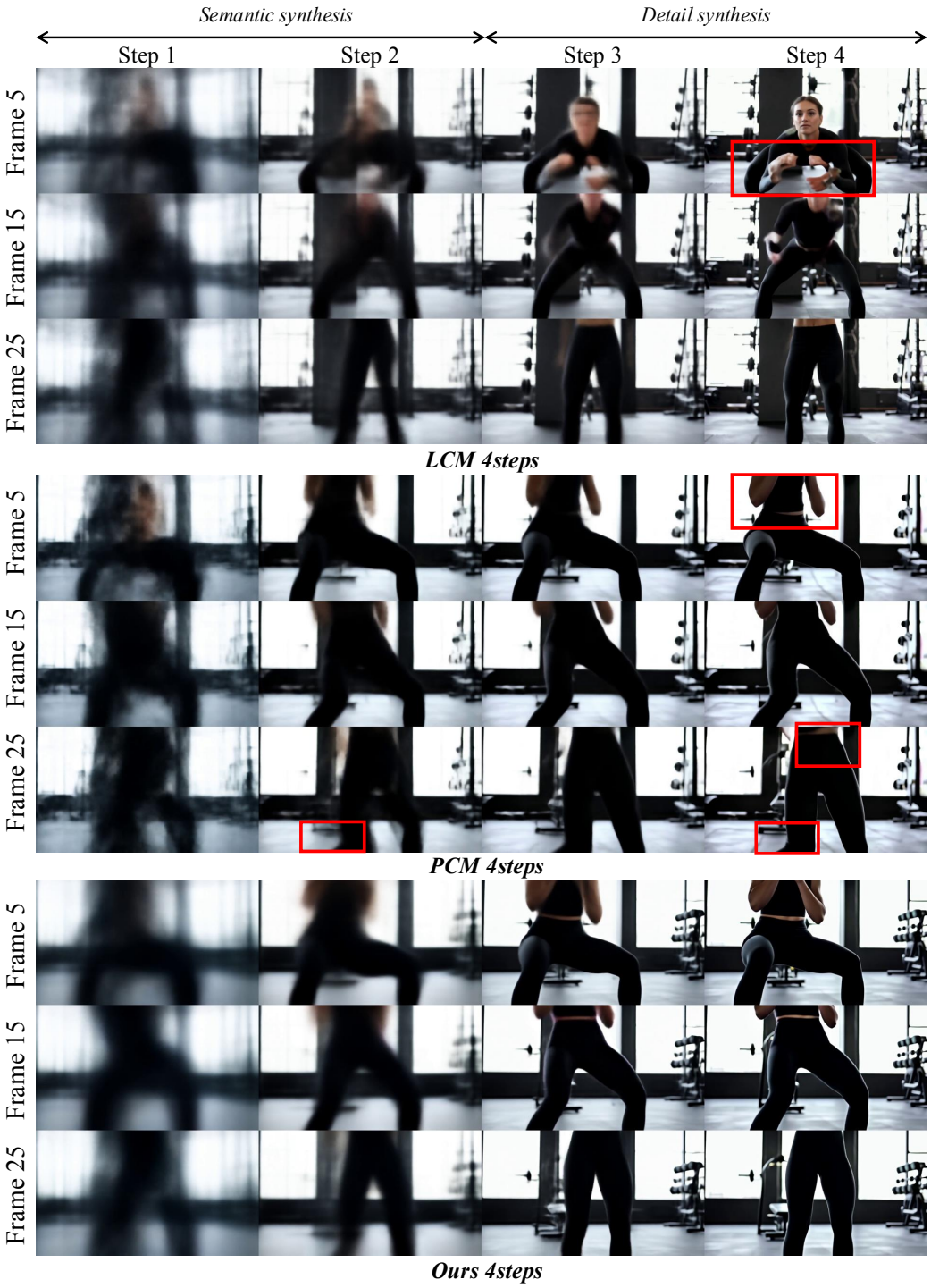

Figure 12. Visualization of the sampling process of different methods.

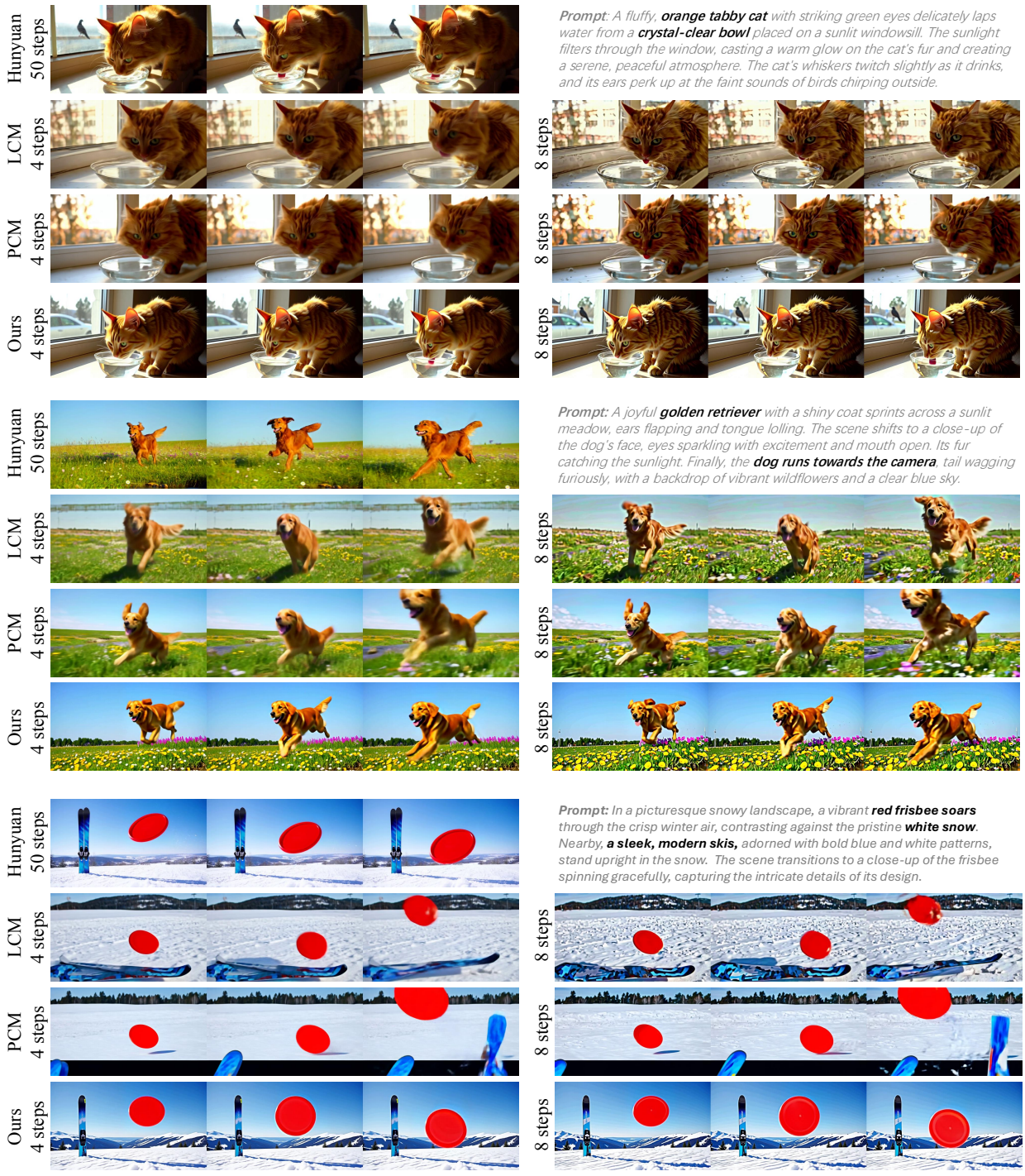

Figure 13. Visual quality comparison of different methods.

Figure 14. Visual quality comparison of different methods.

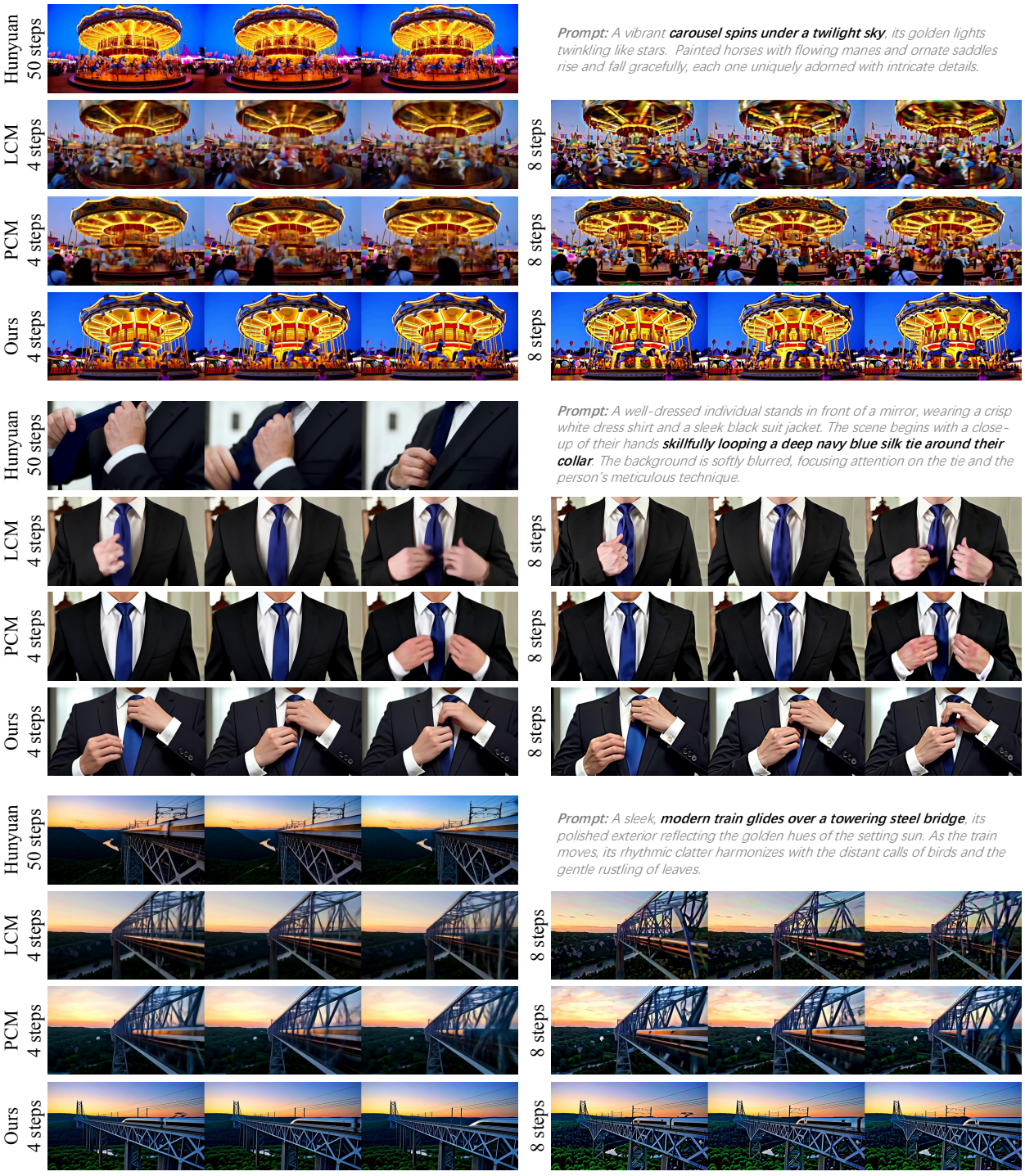

Figure 15. Visual quality comparison of different methods.

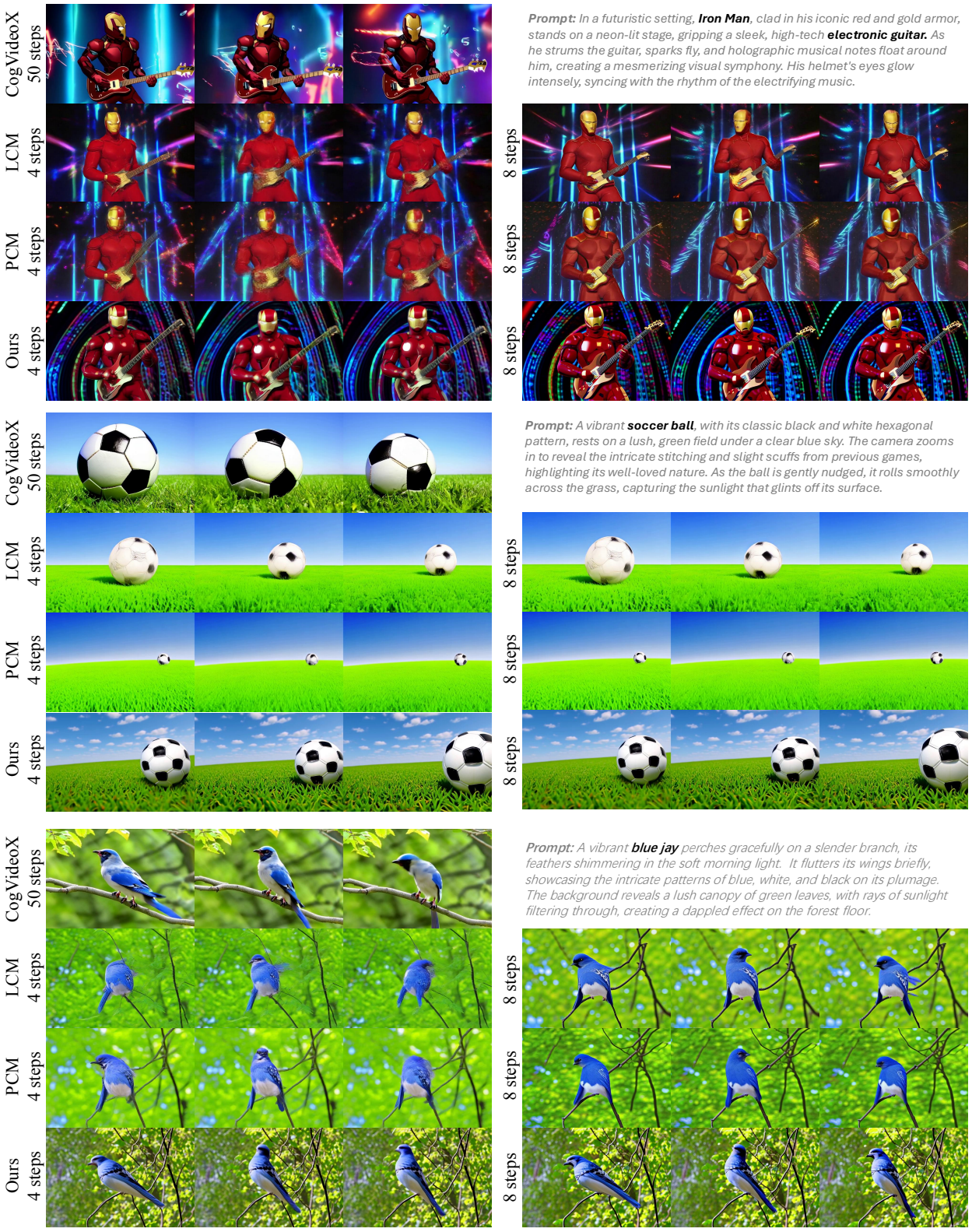

Figure 16. Visual quality comparison of different methods.