

Supplementary Materials: A General Framework to Boost 3D GS Initialization for Text-to-3D Generation by Lexical Richness

Anonymous Authors

1 USER STUDIES

Different init + LucidDreamer	Preference Percentage
Sphere	3.2%
Point-E	4.0%
Shap-E	4.8%
Ours	88.0%

Table 1: Preferences for different initialization + LucidDreamer [2].

Our init + rendering optimization	Preference Percentage
DreamGaussian	2.8%
GaussianDreamer	31.6%
LucidDreamer	65.6%

Table 2: Preferences for our initialization + different rendering optimization methods.

We conduct the user studies based on a survey involving 50 participants, and 20 prompts with their corresponding 3D scene options. These scenes are generated using four initialization methods based on LucidDreamer [2], including Sphere, Point-E [3], Shap-E [1], and Ours. As shown in Tab. 1, 3.2% of the participants preferred scenes generated by Sphere initialization, 4% preferred those by Point-E initialization, 4.8% preferred Shap-E initialization, and a significant majority of 88% preferred scenes generated by Our initialization. Most participants think our initialization methods can provide the best generation results.

Furthermore, we also compare the different rendering optimization methods based on our initialization methods with DreamGaussian [4], GaussianDreamer [5], or LucidDreamer [2]. As demonstrated in Tab. 2, 2.8% of the participants favored scenes generated by DreamGaussian, 31.6% preferred GaussianDreamer, and 65.6% favored LucidDreamer. In conclusion, in most scenes, the users preferred our initialization with LucidDreamer.

2 MORE VISUAL RESULTS

From Fig. 1 to Fig. 8, we provide more visual comparisons of different initialization methods based on LucidDreamer [2].

From Fig. 9 to Fig. 12, we provide more visual comparisons of different rendering optimization methods based on our initialization, including DreamGaussian [4], GaussianDreamer [5], and LucidDreamer [2].



Figure 1: Visual comparison of different initialization methods based on LucidDreamer [2].

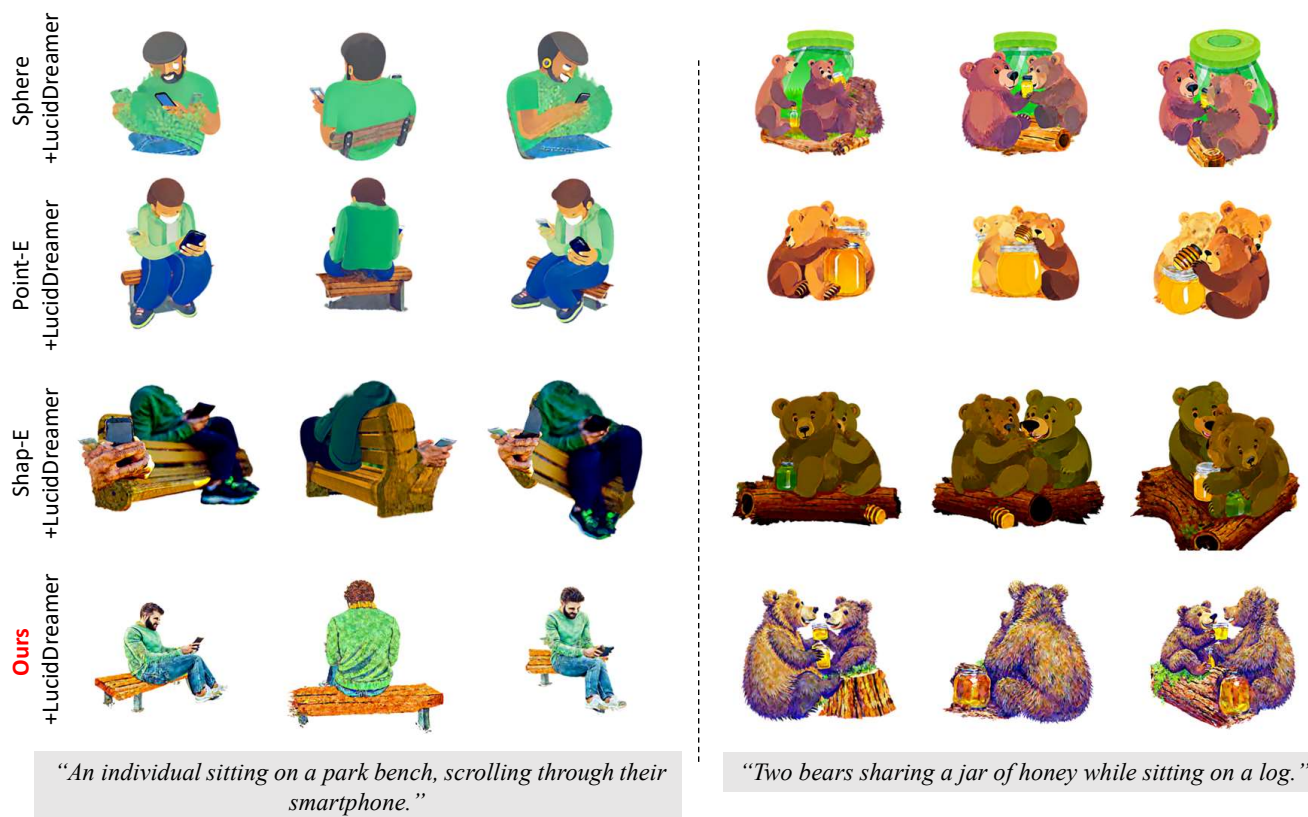


Figure 2: Visual comparison of different initialization methods based on LucidDremer [2].



Figure 3: Visual comparison of different initialization methods based on LucidDreamer [2].



Figure 4: Visual comparison of different initialization methods based on LucidDreamer [2].

Sphere
+LucidDreamer

Point-E
+LucidDreamer

Shap-E
+LucidDreamer

Ours
+LucidDreamer



"A robot single-handedly lifting a basketball."



"a koala wearing a party hat and blowing out candles."

Figure 5: Visual comparison of different initialization methods based on LucidDreamer [2].

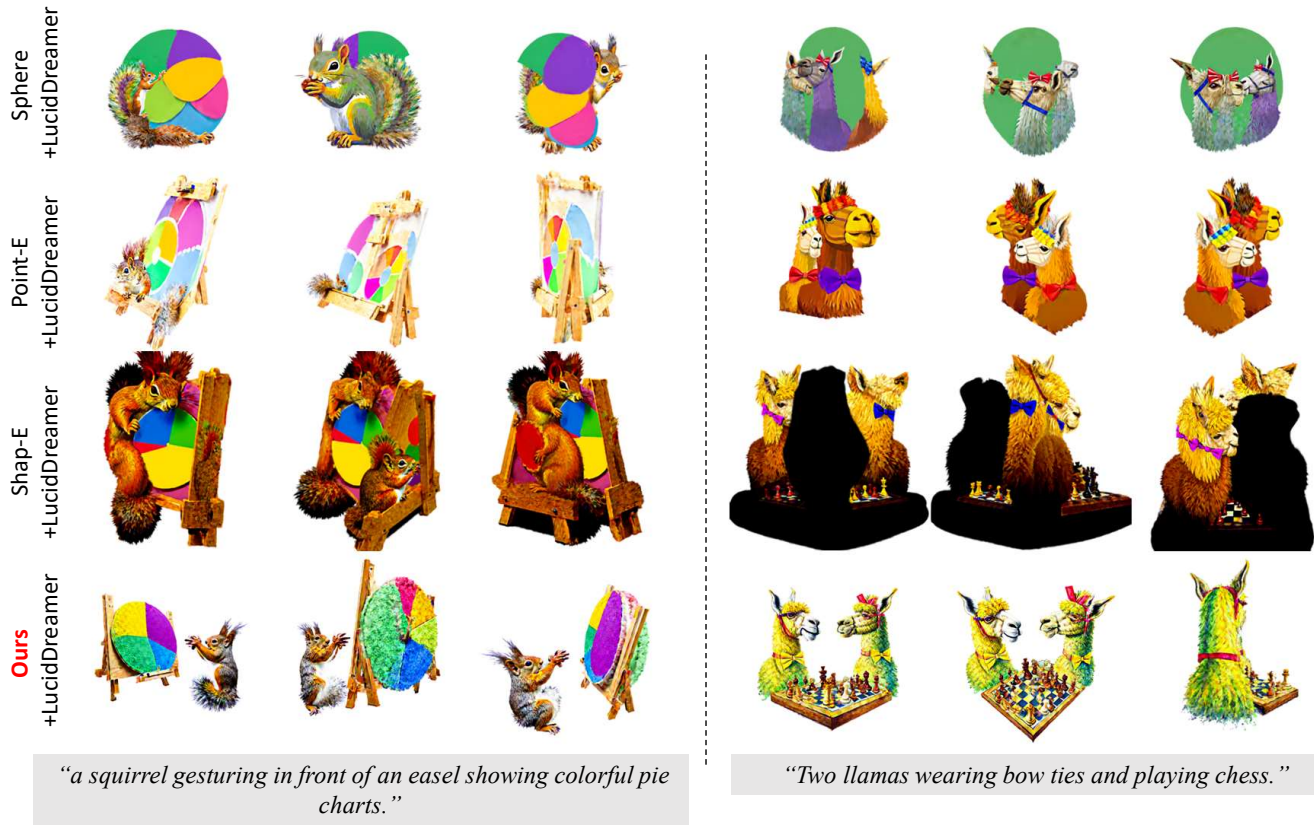


Figure 6: Visual comparison of different initialization methods based on LucidDreamer [2].

Sphere
+LucidDreamer

Point-E
+LucidDreamer

Shap-E
+LucidDreamer

Ours
+LucidDreamer



"A young girl with butterfly wings, reading a fairy tale while sitting on a giant book."



"A squirrel knight in armor jousting on a lawn."

Figure 7: Visual comparison of different initialization methods based on LucidDreamer [2].

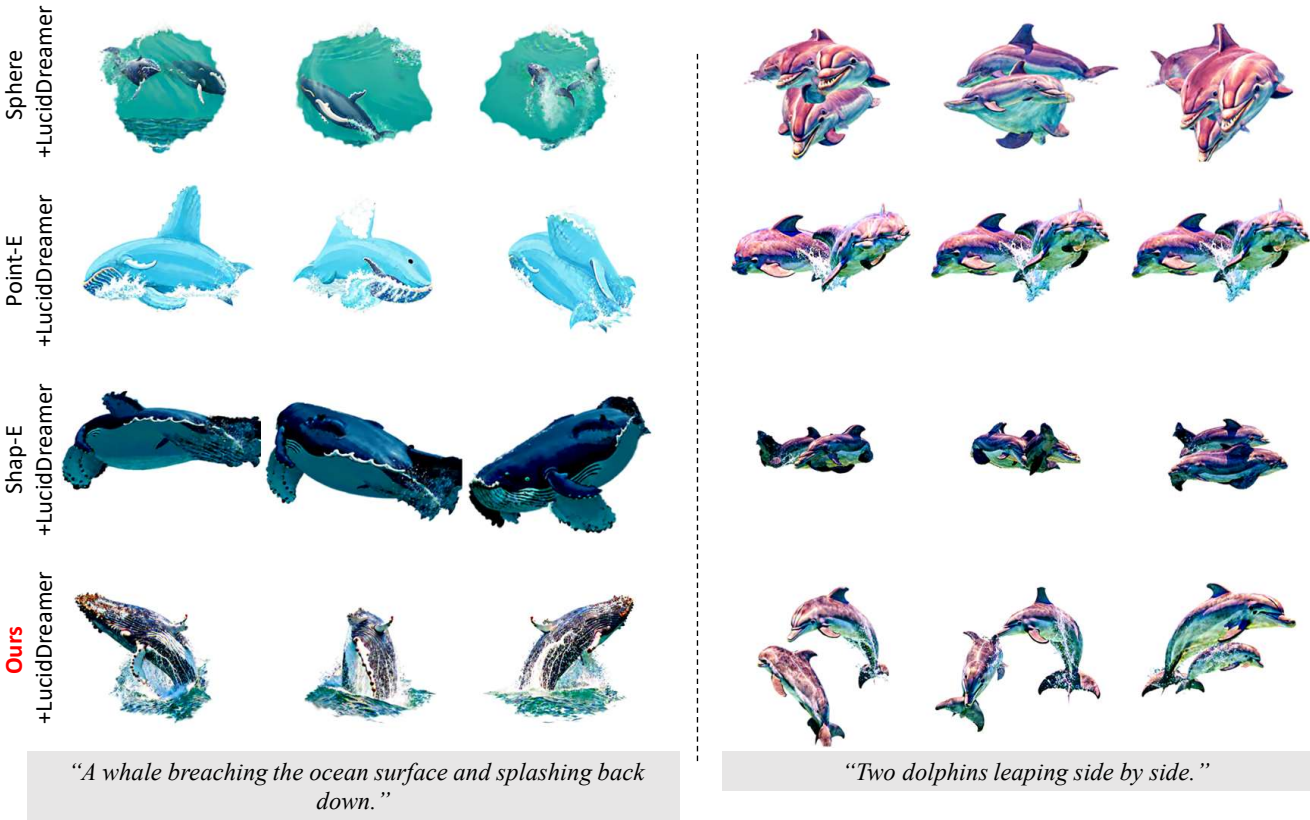


Figure 8: Visual comparison of different initialization methods based on LucidDreamer [2].



Figure 9: Visual comparison of different rendering optimization methods based on our initialization, including DreamGaussian [4], GaussianDreamer [5], and LucidDreamer [2].



Figure 10: Visual comparison of different rendering optimization methods based on our initialization, including DreamGaussian [4], GaussianDreamer [5], and LucidDreamer [2].



Figure 11: Visual comparison of different rendering optimization methods based on our initialization, including DreamGaussian [4], GaussianDreamer [5], and LucidDreamer [2].

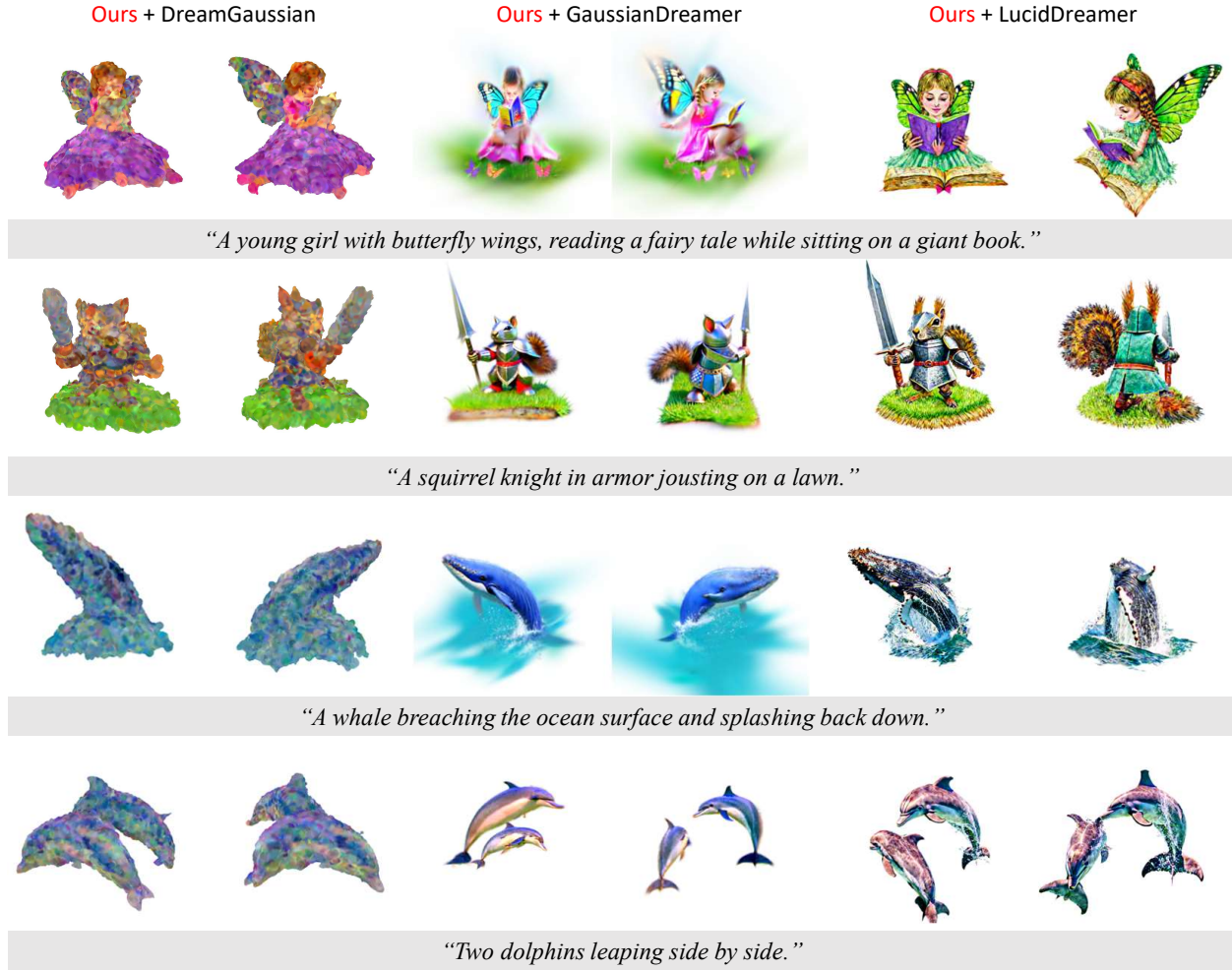


Figure 12: Visual comparison of different rendering optimization methods based on our initialization, including DreamGaussian [4], GaussianDreamer [5], and LucidDreamer [2].

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