

A TRAINING DETAILS OF BRIGHTDREAMER

For a clearer illustration of our training pipeline, we provide the details in Algorithm. 1. We train 36 hours for the vehicle prompts set, 60 hours for the daily life prompts set, and 30 hours for the animal prompts set on a server with 8 80GB GPUs.

Algorithm 1 Training Procedures of BrightDreamer

Input: S , training prompts set ; B , batch size of prompts; C , batch size of cameras; max_iter , maximum training iterations

for $i \leftarrow 1$ to max_iter **do**

$prompts \leftarrow$ sample B prompts in S ;

$3D_GS \leftarrow \text{BrightDreamer}(prompts)$;

$loss \leftarrow 0$;

for $i \leftarrow 1$ to B **do**

$cameras \leftarrow$ randomly sample C cameras on upper sphere;

$rendered_images \leftarrow \text{splatting}(3D_GS[i], cameras)$;

$texts_dir \leftarrow prompt[i]$ added front/side/back;

$loss \leftarrow loss + \text{SDS}(rendered_images, texts_dir)$; # Eq. 6

end for

 optimizer.zero_grad();

$loss.backward()$;

 optimizer.step();

end for

End.

B INFERENCE PROCEDURES OF OUR BRIGHTDREAMER

In Algorithm. 2, we provide the inference details of our BrightDreamer.

C MORE VISUAL RESULTS OF ABLATION STUDIES

In Fig. 11, We provide more visual results in ablation studies.

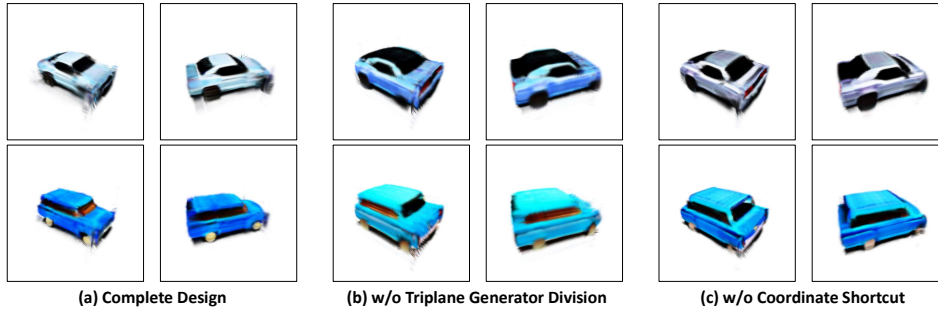


Figure 10: More ablation visual results. All models were trained to 10,000 iterations with the same other configurations. (a) Our completion design. (b) Replace the three separate generators with a single generator. (c) Don’t input the coordinate to F_{shape} and F_{color} . The prompt of the first line is "Muscle car, silver moon, hot hatch performance". The prompt of the second line is "Vintage station wagon, cobalt blue, space-efficient design, economical".

D DISCUSSION ABOUT GENERALIZATION

In Fig. 2 of the main paper, we show the different combinations that don’t appear in the training prompts, e.g., 'deep purple' and 'light purple'. Here, we show the word that doesn’t appear in the training prompts may also be understood. For example, 'banana' doesn’t appear in the training

Algorithm 2 Inference Procedures of Our BrightDreamer

Input: p , the anchor positions; $prompt$, input text prompt;
Output: $3D_GS$, the generated 3D GS;
 # Shape Deformation
 $\Delta \leftarrow \text{TSD}(p, prompt)$;
 $p' \leftarrow p + \delta$;
 # Triplane Generation
 $\pi_{xy} \leftarrow \text{TTG_XY}(prompts)$;
 $\pi_{xz} \leftarrow \text{TTG_XZ}(prompts)$;
 $\pi_{yz} \leftarrow \text{TTG_YZ}(prompts)$;
 # 3D Gaussian Decoding
 $\mathcal{F}_{xy} \leftarrow \text{grid_sample}(p'[\dots, [0, 1]], \pi_{xy})$;
 $\mathcal{F}_{xz} \leftarrow \text{grid_sample}(p'[\dots, [0, 2]], \pi_{xz})$;
 $\mathcal{F}_{yz} \leftarrow \text{grid_sample}(p'[\dots, [1, 2]], \pi_{yz})$;
 $\mathcal{F} \leftarrow (\mathcal{F}_{xy} + \mathcal{F}_{xz} + \mathcal{F}_{yz}) / 3$;
 $S, R, \alpha \leftarrow F_{shape}(\mathcal{F}, p')$;
 $SH \leftarrow F_{color}(\mathcal{F}, p')$;
 # 3D GS Construction
 $3D_GS \leftarrow \text{GaussianModel}()$;
 $3D_GS.\text{xyz} \leftarrow p'$;
 $3D_GS.\text{opacity} \leftarrow \alpha$;
 $3D_GS.\text{rotation} \leftarrow S$;
 $3D_GS.\text{scaling} \leftarrow R$;
 $3D_GS.\text{feature_dc} \leftarrow SH$;
return $3D_GS$;
End.

process anymore. However, as shown in Fig. 19 and Fig. 27, it can generate the corresponding color accurately.

E MORE VISUAL RESULTS

From Fig. 12 to Fig. 51, we provide more multi-view results of our BrightDreamer. Our method shows strong detail control ability.

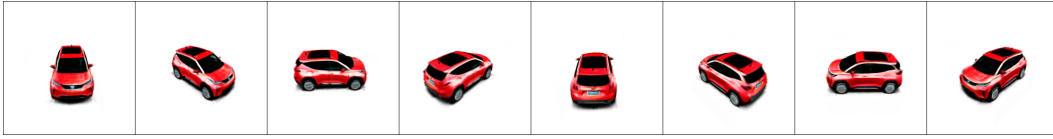


Figure 11: Electric luxury SUV, apple red, spacious, advanced tech



Figure 12: Electric luxury SUV, yellow, spacious, advanced tech



Figure 13: Electric luxury SUV, forest green, spacious, advanced tech

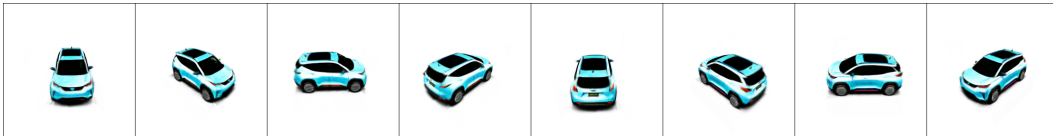


Figure 14: Electric luxury SUV, cyan, spacious, advanced tech

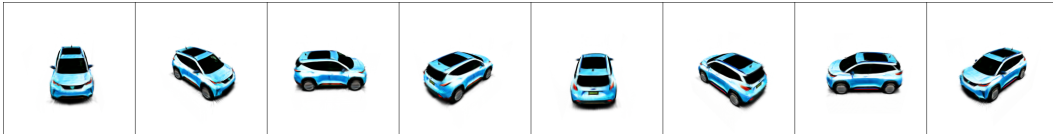


Figure 15: Electric luxury SUV, deep blue, spacious, advanced tech



Figure 16: Electric luxury SUV, light purple, spacious, advanced tech



Figure 17: Racing car, deep red, lightweight aero kit, sequential gearbox



Figure 18: Racing car, blaze orange, lightweight aero kit, sequential gearbox



Figure 19: Racing car, banana, lightweight aero kit, sequential gearbox



Figure 20: Racing car, green, lightweight aero kit, sequential gearbox



Figure 21: Racing car, cyan, lightweight aero kit, sequential gearbox



Figure 22: Family minivan, purple, large capacity, economical



Figure 23: Family minivan, yellow, large capacity, economical



Figure 24: Family minivan, apple red, large capacity, economical



Figure 25: Family minivan, orange, large capacity, economical



Figure 26: Urban microcar, orange, ideal for city life, fuel-efficient



Figure 27: Urban microcar, banana, ideal for city life, fuel-efficient



Figure 28: Electric coupe, forest green, sleek design, autonomous features



Figure 29: Electric coupe, pearl white, sleek design, autonomous features



Figure 30: Vintage convertible, orange, chrome bumpers, white-wall tires



Figure 31: Vintage convertible, apple red, chrome bumpers, white-wall tires



Figure 32: Vintage convertible, yellow, chrome bumpers, white-wall tires

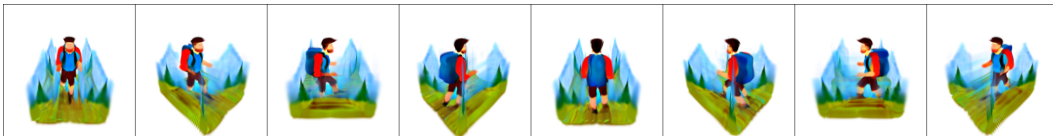


Figure 33: a man wearing a backpack is climbing a mountain



Figure 34: a woman wearing a backpack is climbing a mountain



Figure 35: an elderly man wearing a backpack is climbing a mountain



Figure 36: an elderly woman wearing a backpack is climbing a mountain

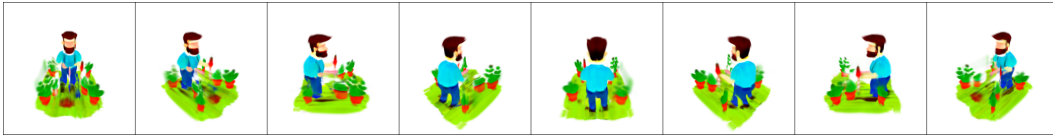


Figure 37: a man is trimming his plants



Figure 38: a fat man is trimming his plants

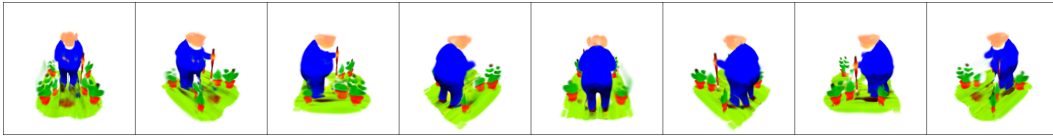


Figure 39: a fat and elderly man is trimming his plants



Figure 40: an elderly man is trimming his plants



Figure 41: a man is playing with a dog



Figure 42: a man wearing a backpack is playing with a dog



Figure 43: a man is playing with a dog on the lawn

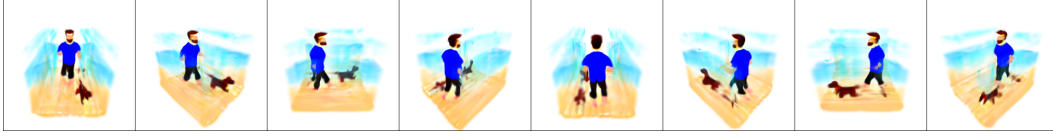


Figure 44: a man is playing with a dog on the beach

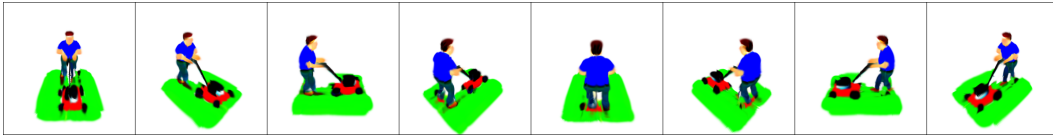


Figure 45: a man is mowing the lawn

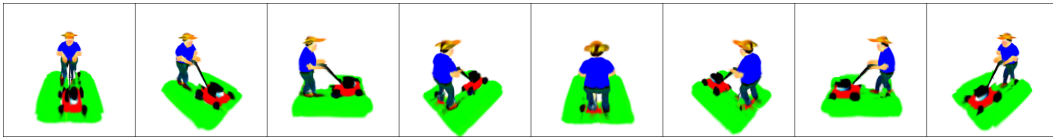


Figure 46: a man wearing a hat is mowing the lawn

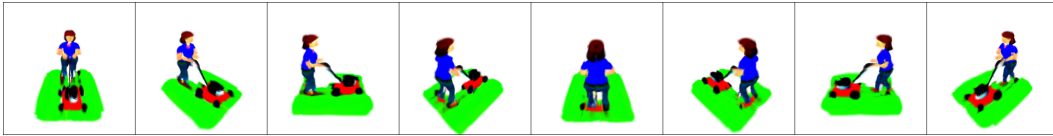


Figure 47: a woman is mowing the lawn

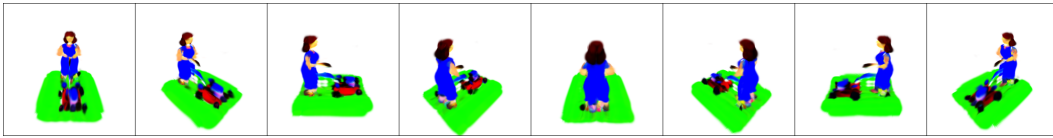


Figure 48: a woman in a long dress is mowing the lawn



Figure 49: A glamorous woman in a cocktail dress is dancing in the park



Figure 50: A glamorous woman in a cocktail dress is dancing on the beach