

Supplementary Material for 3D-SSGAN: Lifting 2D Semantics for 3D-Aware Compositional Portrait Synthesis

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In this supplementary material, we provide more comparisons and more qualitative results of our method. We also provide supplementary videos to show the 3D-consistent synthesis results obtained on both CelebAMask-HQ and FFHQ datasets.

Evaluation on semantic-disentanglement. We extended the comparison on semantic-disentanglement and present the results for hair region editing in Fig. 1. The comparison of difference maps between our method and others further demonstrates the superior disentanglement capability of our approach.

3D-aware part-level image editing. To achieve part-level image editing, we manipulate the latent code corresponding to the specific semantic part in the original image. Then, the new set of latent codes are passed to our 3D-SSGAN to generate multi-view images and the corresponding masks. The qualitative results of 3D-aware part-level image editing are shown in Fig. 2, from which we can see that our method can achieve plausible semantic-aware editing while maintaining the 3D view consistency.

View-consistent image synthesis. Fig. 3 demonstrates more qualitative results of the 3D view-consistent image synthesis. It can be seen that, although our method only utilizes the 2D generators for feature generation, it can still achieve appealing 3D view-consistent results. Such results further verify the effectiveness of our proposed 2D-to-3D lifting module for generating 3D features which can be well optimized by our volume rendering framework.

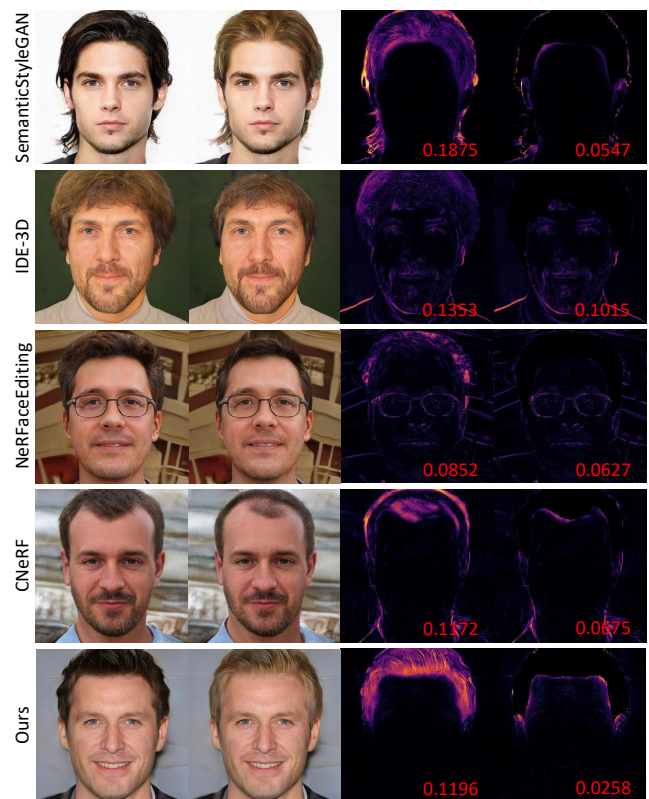


Figure 1: Comparison of difference maps for the hair region .

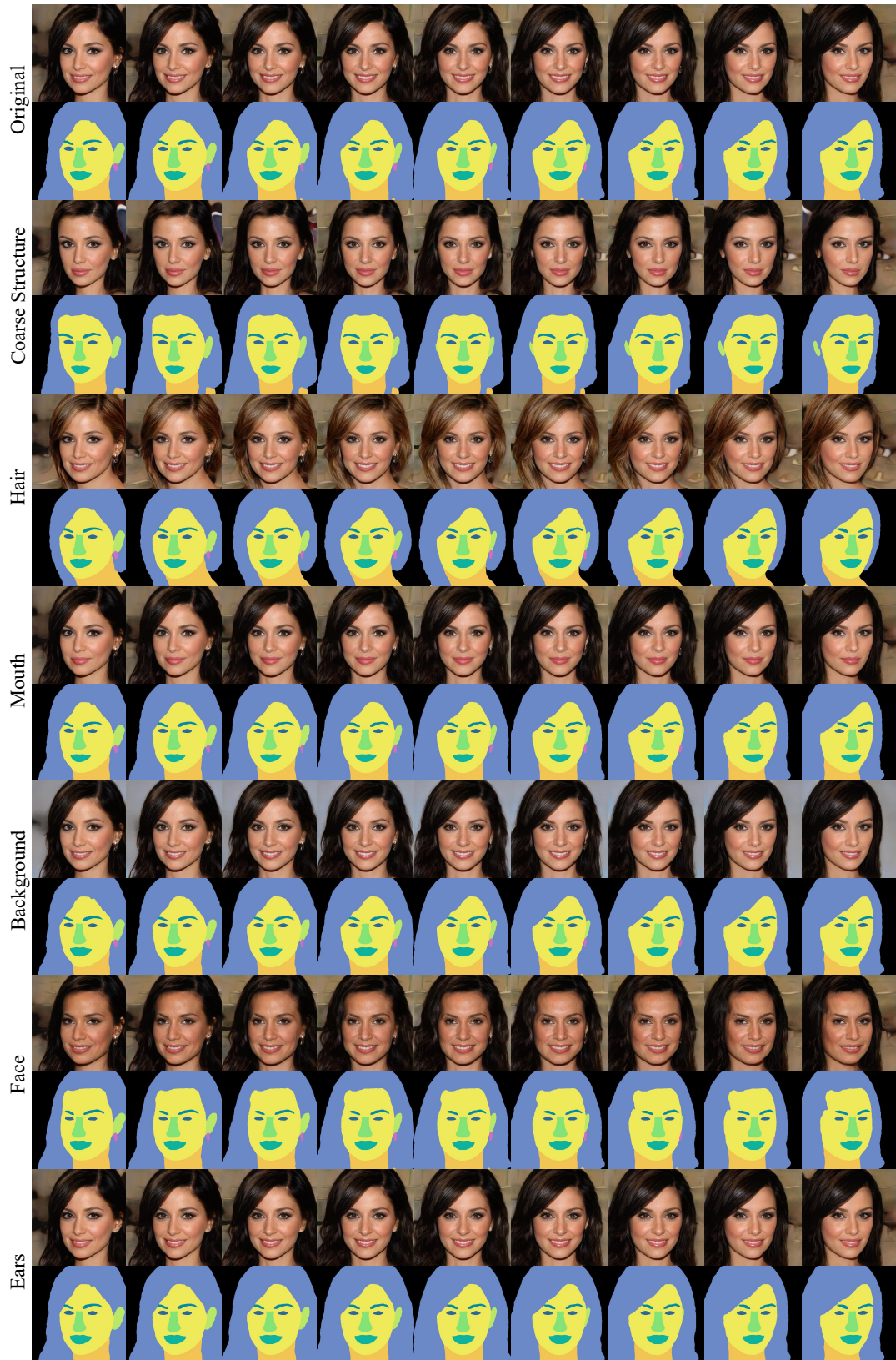


Figure 2: Qualitative results of 3D-aware semantic-disentangled part-level image editing.

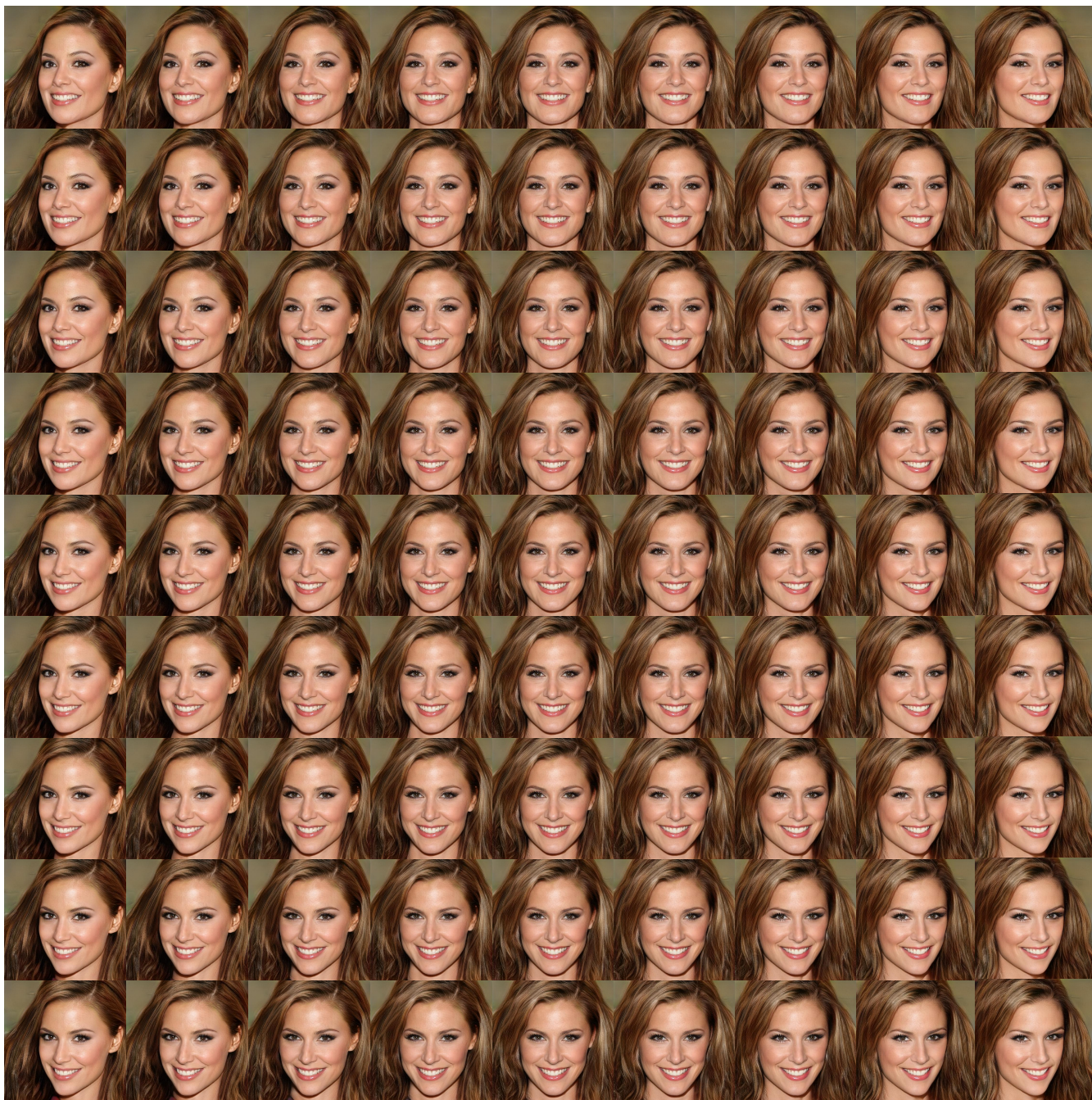


Figure 3: Qualitative results of 3D-aware portrait synthesis.