

Easy-editable Image Vectorization with Multi-layer Multi-scale Distributed Visual Feature Embedding

Supplementary Material

1. Benchmarks

We utilize commonly used Emojis&Icon datasets for evaluation following [1, 2, 4, 5]. We also use the Clipart dataset that contains 200 images introduced by [2]. To make comparisons on natural images, we follow [3] to use ImageNet as a benchmark. Most compared methods, including ours, are based on single-image iterative optimization. Considering the optimization time, we randomly sample 500 images from the ImageNet dataset for evaluation. Additionally, we select representative samples from all benchmarks used in this work, as illustrated in Fig. 1 (next page).

2. More Qualitative Comparisons

We have shown extensive qualitative comparisons of natural images in our paper. Here, we supplement more qualitative comparisons on Emojis&Icon (Fig. 2) and Clipart (Fig. 3).

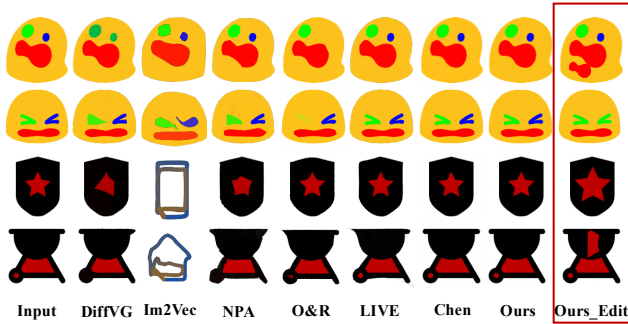


Figure 2. Comparisons on Emojis&Icon datasets. We also show shape/texture editing results of our method.

3. More Results on Natural Images

To show the effectiveness of our model, we show more experimental results on high-resolution natural images (Fig. 4). In addition to the high quality reconstruction results, we also show accurate and realistic shape/texture editing results—something that previous parametrized representation methods have never achieved.

References

- [1] Ye Chen, Bingbing Ni, Xuanhong Chen, and Zhangli Hu. Editable image geometric abstraction via neural primitive assembly. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 23514–23523, 2023. 1
- [2] Ye Chen, Bingbing Ni, Jinfan Liu, Xiaoyang Huang, and Xuanhong Chen. Towards high-fidelity artistic image vectorization via texture-encapsulated shape parameterization. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 15877–15886, 2024. 1
- [3] Teng Hu, Ran Yi, Baihong Qian, Jiangning Zhang, Paul L Rosin, and Yu-Kun Lai. Supersvg: Superpixel-based scalable vector graphics synthesis. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 24892–24901, 2024. 1
- [4] Xu Ma, Yuqian Zhou, Xingqian Xu, Bin Sun, Valerii Filev, Nikita Orlov, Yun Fu, and Humphrey Shi. Towards layer-wise image vectorization. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 16314–16323, 2022. 1
- [5] Pradyumna Reddy, Michael Gharbi, Michal Lukac, and Niloy J Mitra. Im2vec: Synthesizing vector graphics without vector supervision. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 7342–7351, 2021. 1

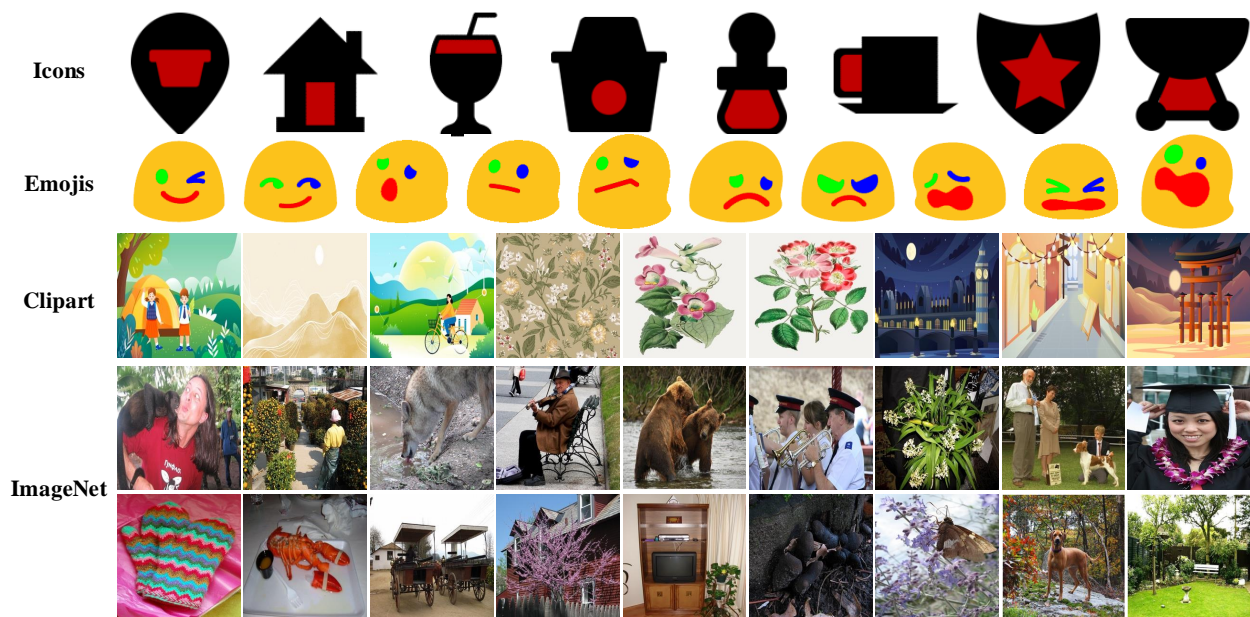


Figure 1. Samples of all used benchmarks.

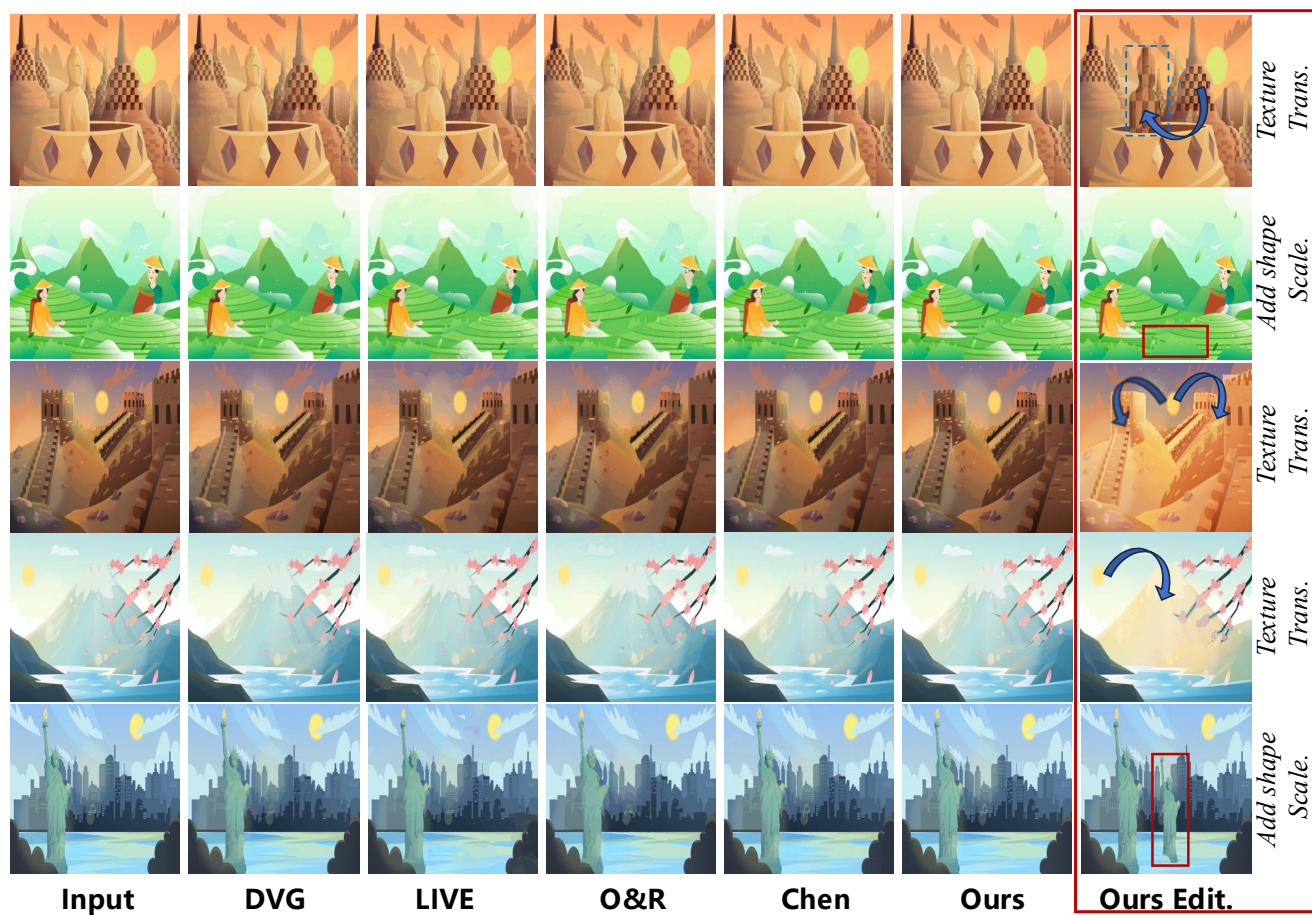


Figure 3. Qualitative comparisons on Clipart dataset. Please zoom in for visual differences. We also show the shape/texture editing results of our method. We use red boxes to indicate the edited shapes and blue arrows to indicate texture transfer.

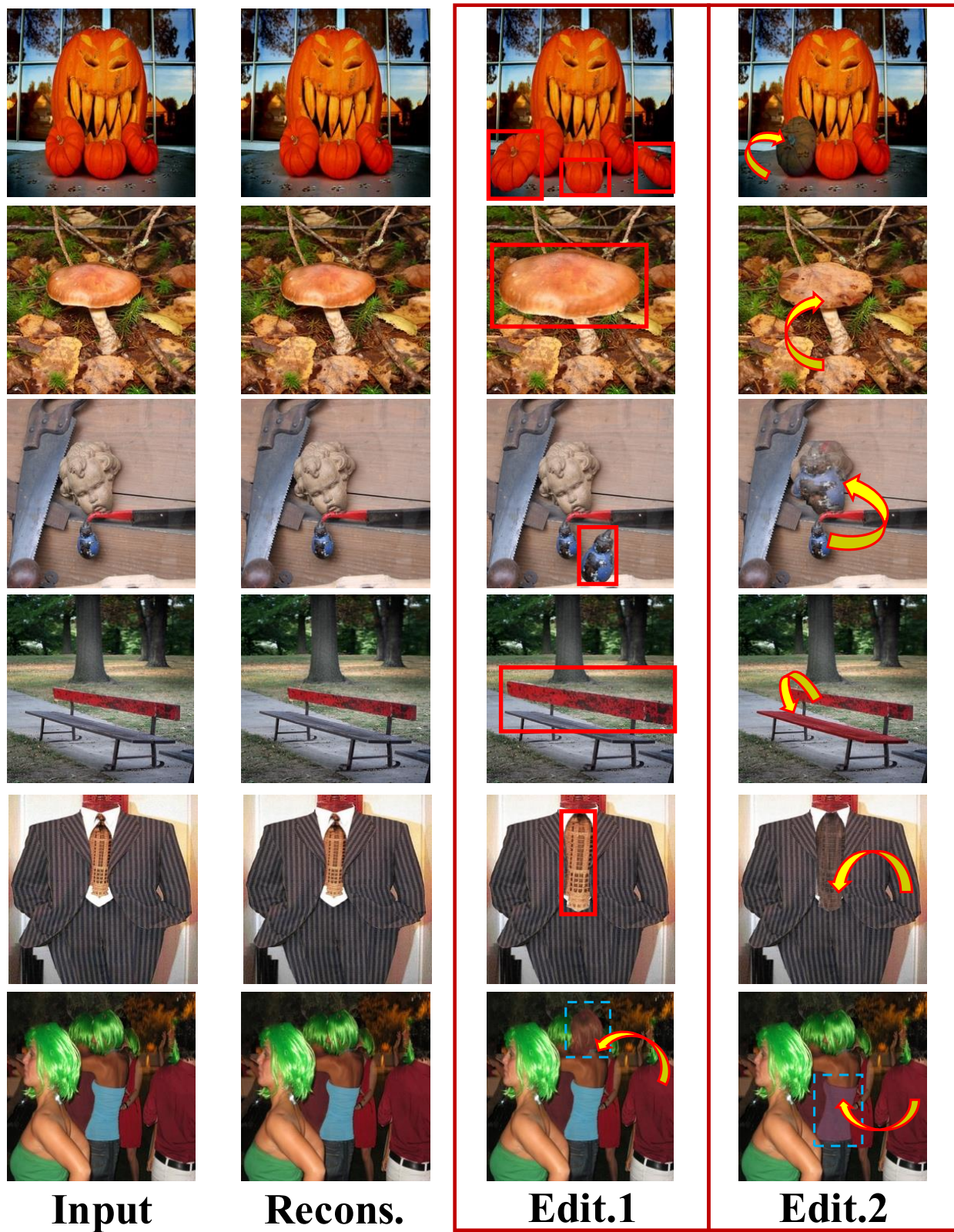


Figure 4. More results on natural images. We also show the shape/texture editing results of our method, which have never been achieved by other methods. We use red boxes to indicate the edited shapes and arrows to indicate texture transfer. Please zoom in for more details.