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102		152
103	Supplementary Materials for	153
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105	"A Common Framework for Interactive Texture Transfer"	155
106		156
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108	Paper ID 3482	158
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112	In this document we provide the following supplementary contents:	162
113		163
114	• Applications of multiple challenging interactive texture transfer tasks: turning doodles into artwork, editing	164
115	decorative patterns, generating texts in special effect and swapping textures.	165
116	• Comparison of our interactive texture transfer approach with state-of-the-art methods.	166
117	• Experimental results with state-of-the-art image completion methods.	167
118	• Experimental results with drastically different semantic inputs.	168
119	• Failure cases.	169
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124	1. Applications	174
125		175
126	1.1. Doodles-to-artwork	176
127	This task turns doodles into paintings with various style, containing oil pastel, watercolor, colored pencils, comic and	177
128	photorealism.	178
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149	Figure 1. Doodles-to-artwork transfer results. Image courtesy of Champandard [2].	199

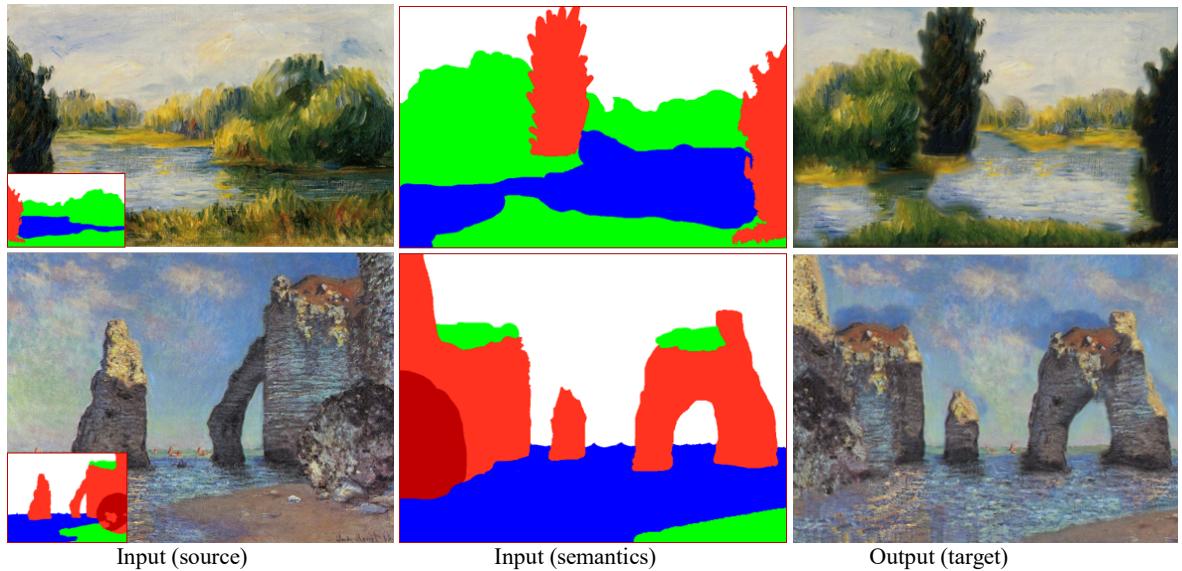
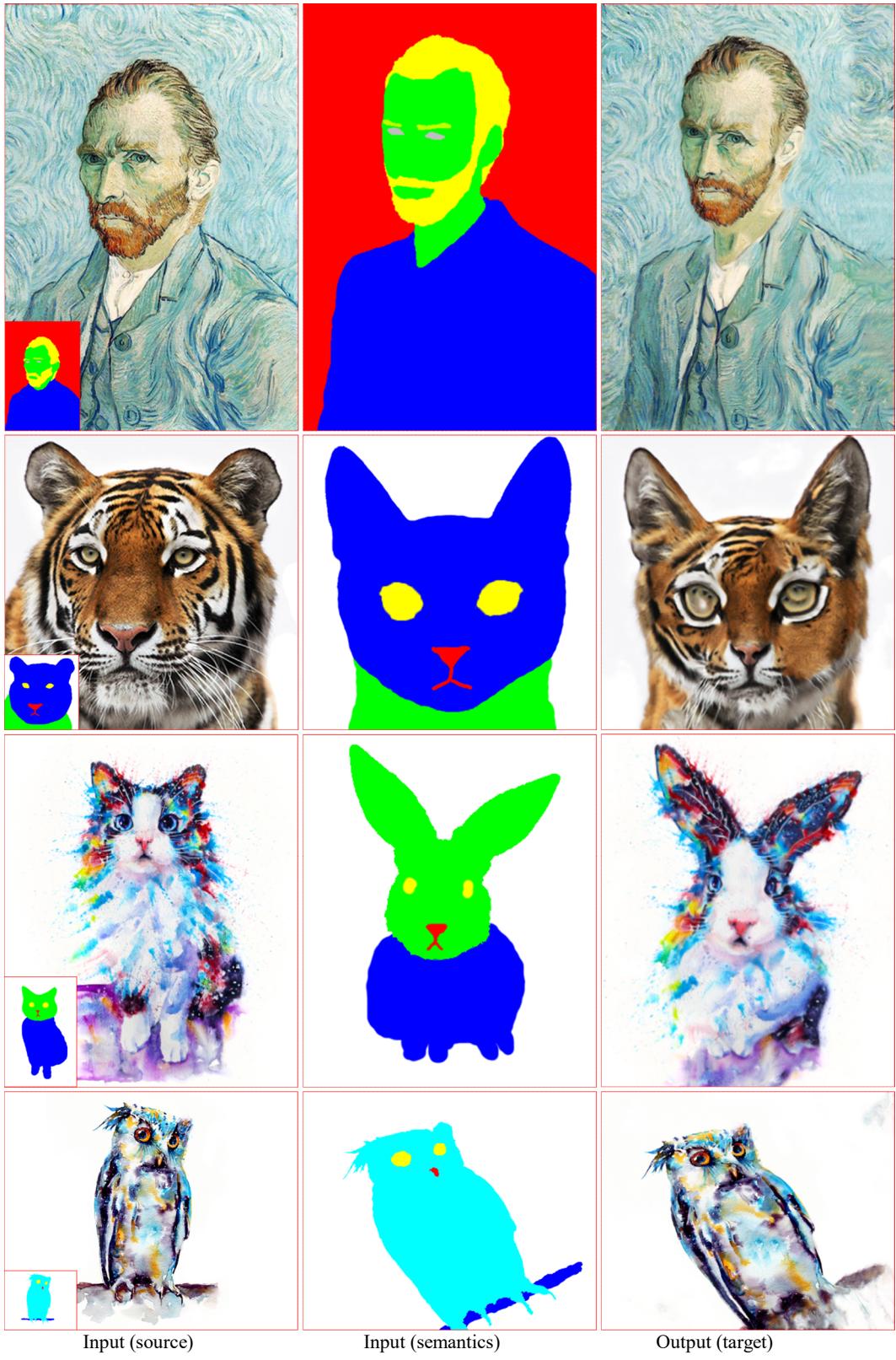
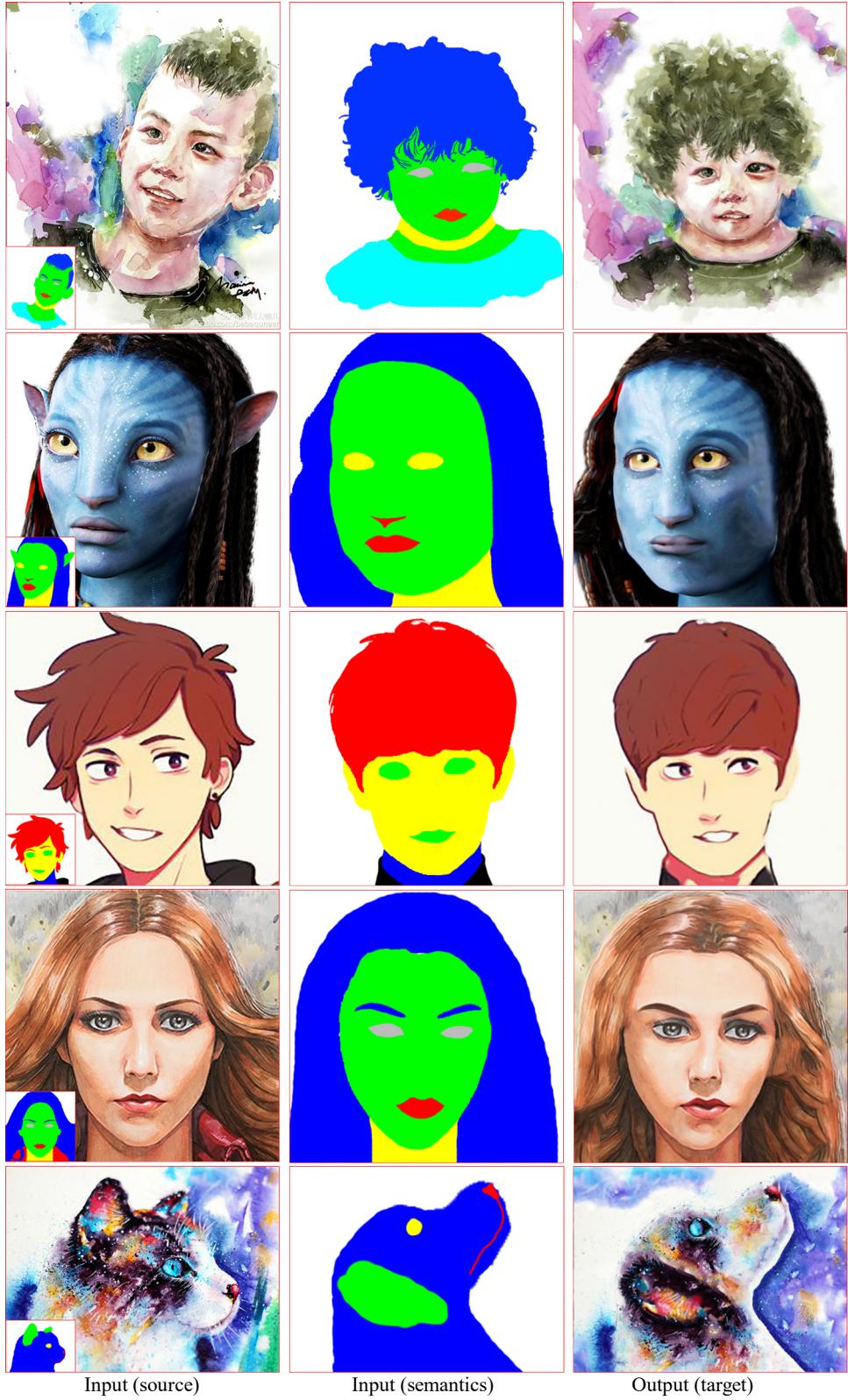
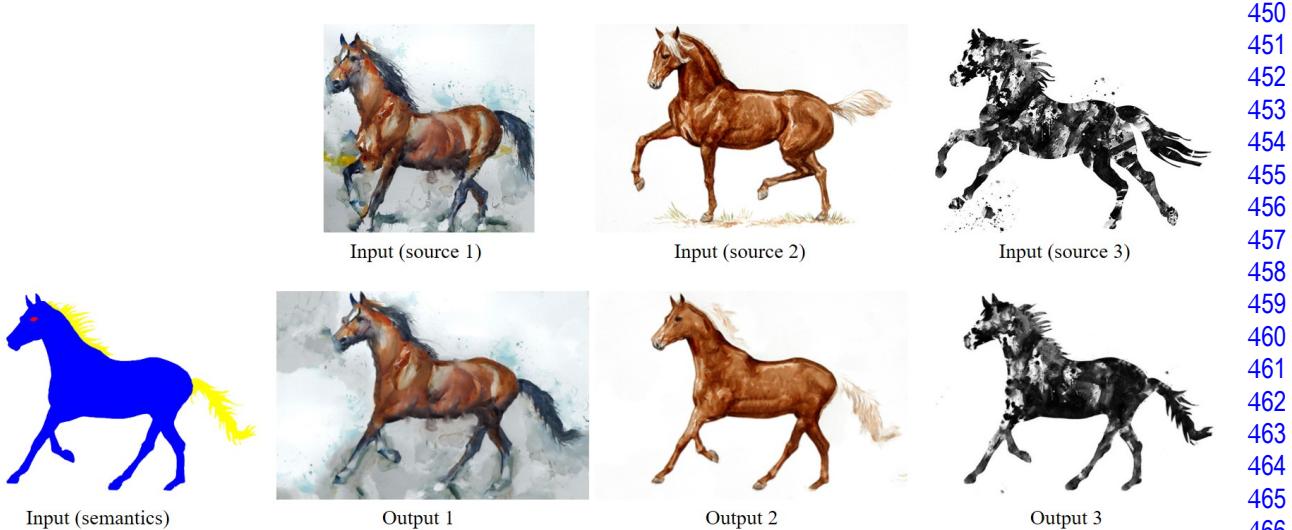


Figure 1. Doodles-to-artwork transfer results. Image courtesy of Champandard [2].

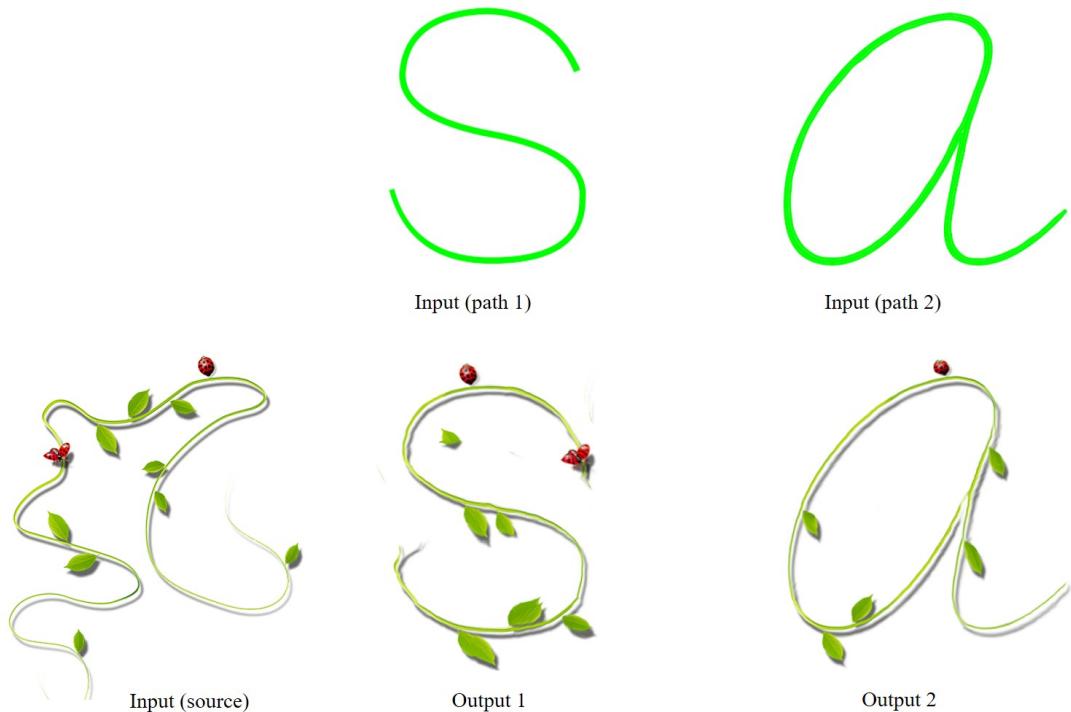
Figure 2. Doodles-to-artwork transfer results. Image courtesy of Van Gogh, Liao *et al.* [5] and Zcool [1].

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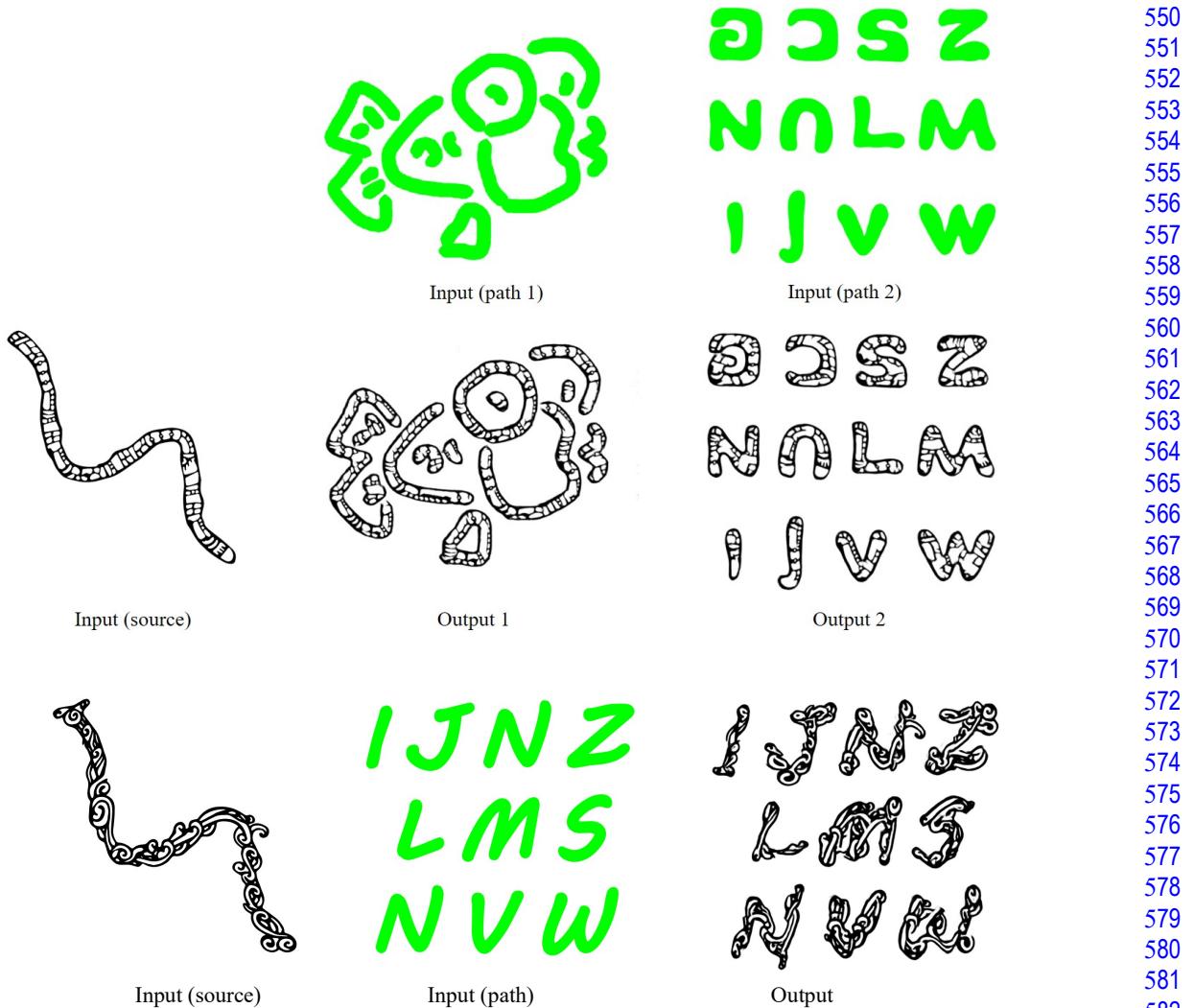
Figure 3. Doodles-to-artwork transfer results. Image courtesy of Liao *et al.* [5] and Zcool [1].

Figure 4. Results of doodles-to-artwork transfer with various style. Image courtesy of Liao *et al.* [5].

## 1.2. Decorative Pattern Editing

Figure 5. Decorative pattern editing results. Image courtesy of Lu *et al.* [10]

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Figure 6. Decorative pattern editing results. Image courtesy of Lu *et al.* [10].

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## 1.3. Special Effect Text Generation

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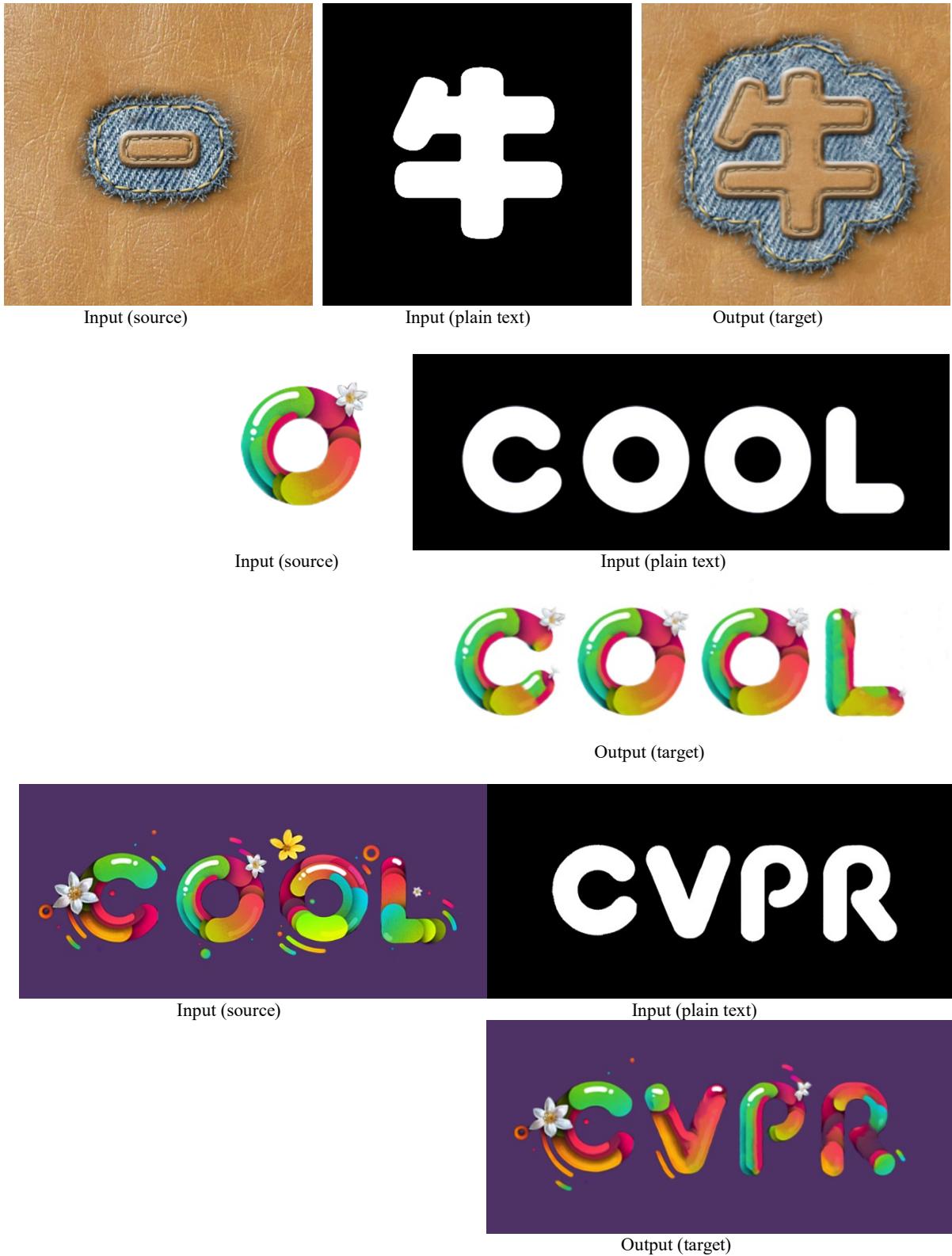
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Figure 7. Results of generating special effect text with designed textures. Image courtesy of Zcool [1].

Figure 8. Results of generating special effect text with designed textures. Image courtesy of Yang *et al.* [8] and Envato [11].

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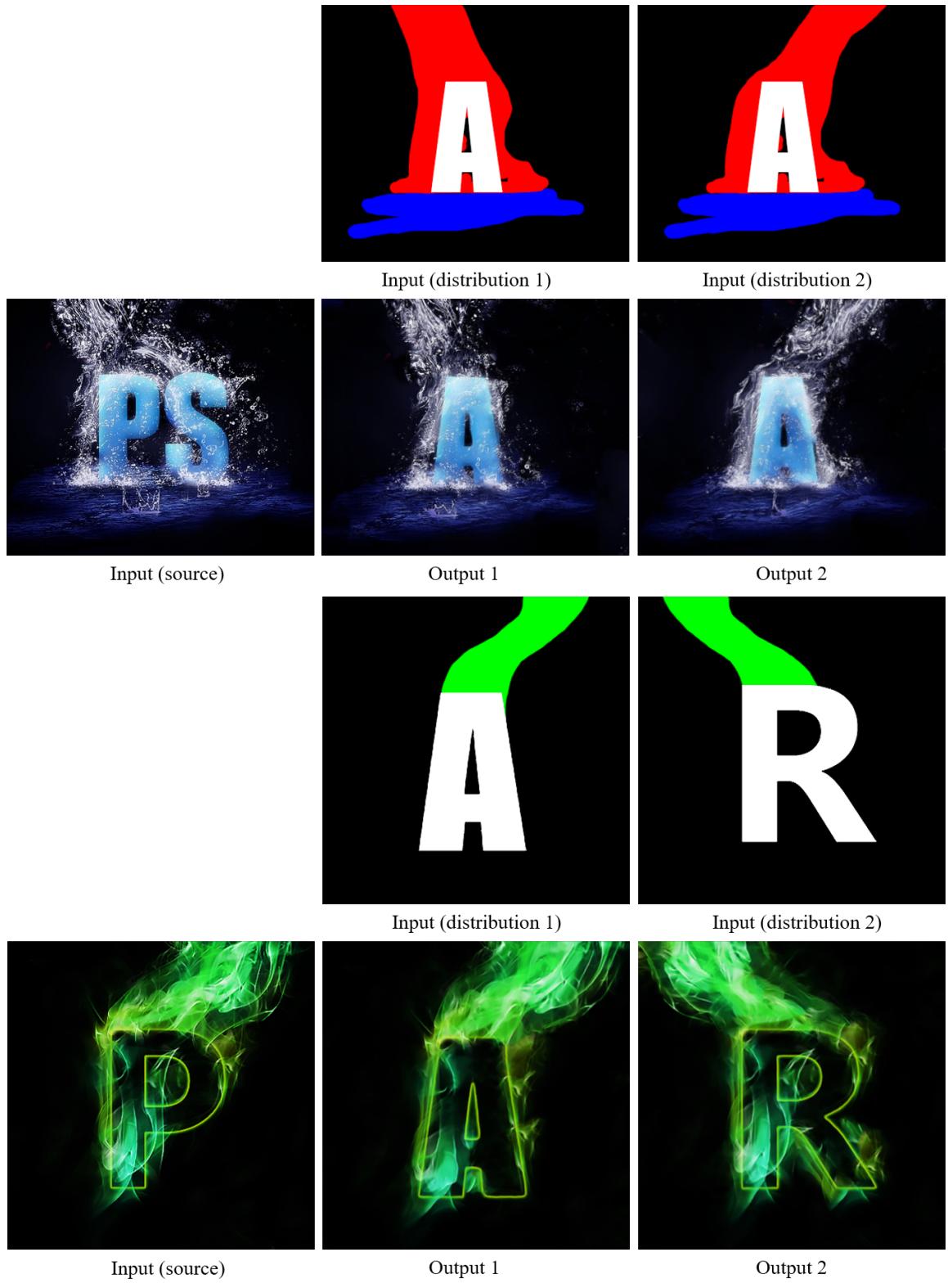
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Figure 9. Results of generating complex text with controlling the effect distribution. Image courtesy of Yang *et al.* [8].

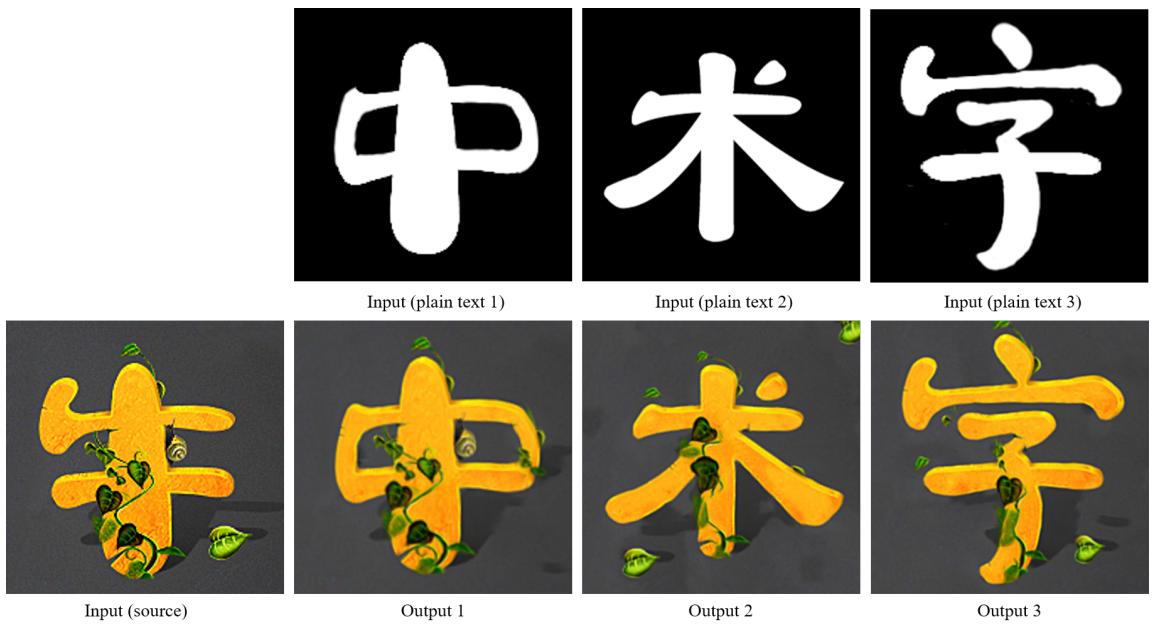
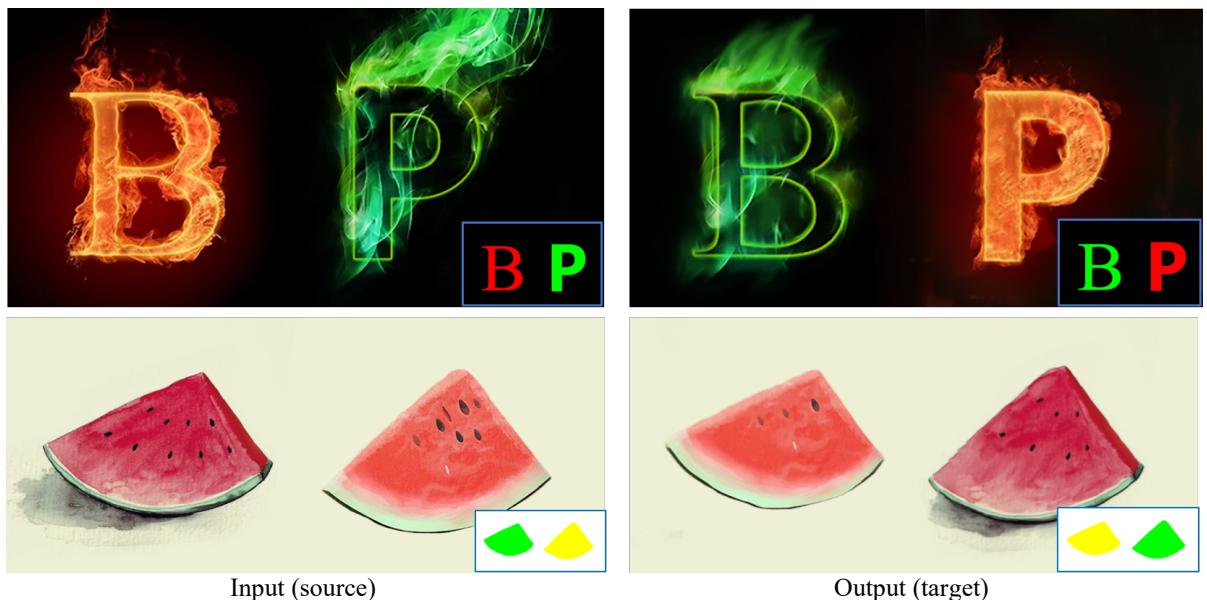


Figure 10. Results of generating complex text with salient structure. Image courtesy of Zcool [1].

## 1.4. Texture Swap

Figure 11. Texture swap results. Image courtesy of Yang *et al.* [8] and Zcool [1].

## 1000 2. Comparisons with State-of-the-Art Methods 1050

1001 Here we compare our algorithm with state-of-the-art interactive texture transfer methods in different scenarios. We apply 1051  
1002 synthesis constraint without structure restrain to original optimized-based method [6, 7] to build our baseline. our approach is 1052  
1003 capable of synthesizing higher-quality content-specific stylization with well-preserved structures. 1053  
1004 1054

1005 Source semantic map  $S_{sem}$  10551006 Source stylized image  $S_{sty}$  10561007 Target semantic map  $T_{sem}$  1057

1008 Image Analogy [3] 1058



1009 Text Effects Transfer [8] 1059



1010 Neural Doodle [2] 1060



1011 Deep Image Analogy [5] 1061



1012 Baseline 1062



1013 Our Method 1063

1047 Figure 12. Comparison with state-of-the-art methods on the doodles-to-artwork task. 1097

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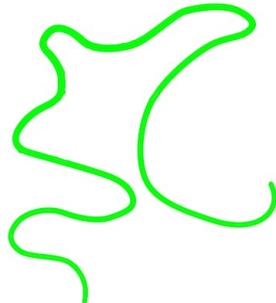
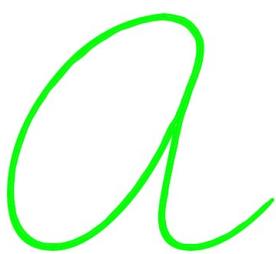
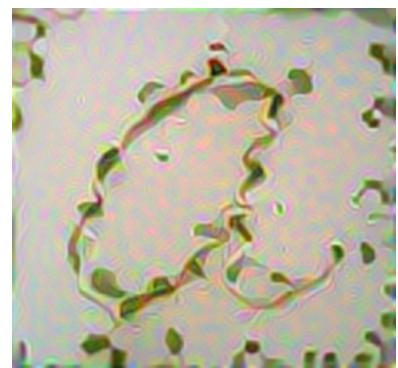
Source semantic map  $S_{sem}$ Source stylized image  $S_{sty}$ Target semantic map  $T_{sem}$ 

Image Analogy [3]



Text Effects Transfer [8]



Neural Doodle [2]



Deep Image Analogy [5]



Baseline



Our Method

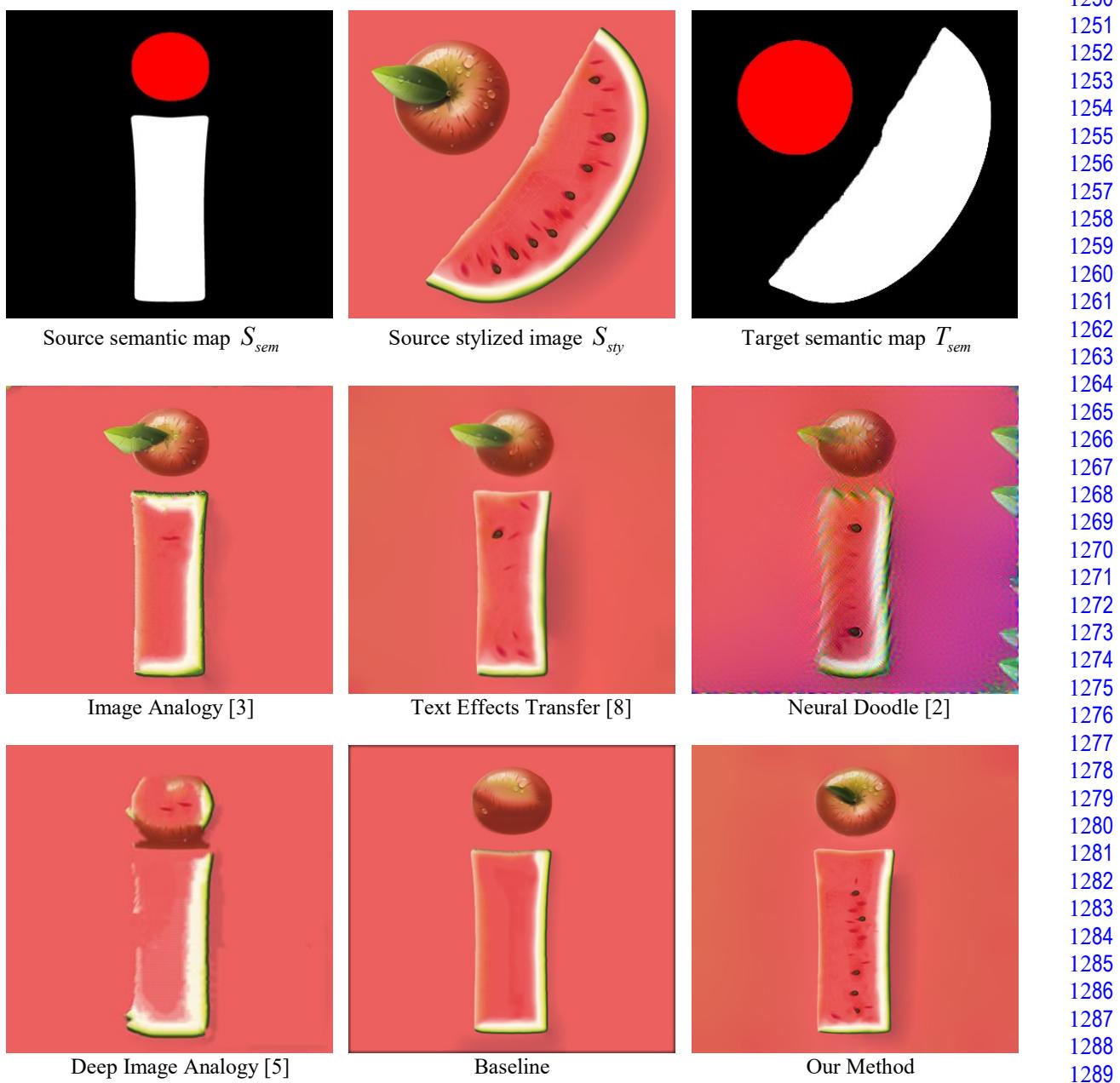


Figure 14. Comparison with state-of-the-art methods on the special effect text generation task.

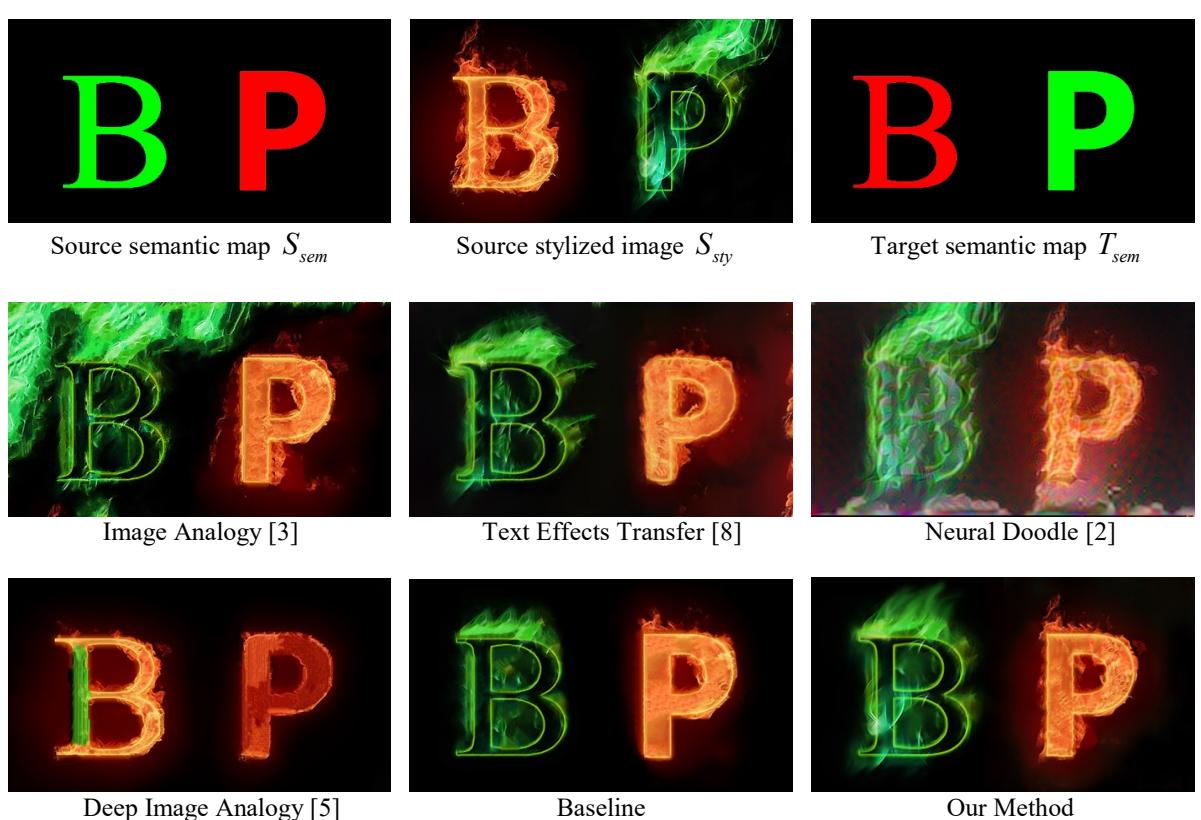


Figure 15. Comparison with state-of-the-art methods on the texture swap task.

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## 1400 3. Results with Image Completion Methods 1450

1401 Our idea is inspired by image completion problem. Semantic map provides more information for boundary patches, after 1451  
1402 that are correctly synthesized, this interactive texture transfer problem could almost be degenerated into an image completion 1452  
1403 task with a large hole to be filled via boundary propagation. We have tried two state-of-the-art inpainting methods [4, 9] but 1453  
1404 our experimental results show that both of them fail to synthesize structural textures with such a large hole. They are prone to 1454  
1405 texture dislocation or fail to preserve local high-frequency structures without enough structural guidance. 1455  
1406 1456

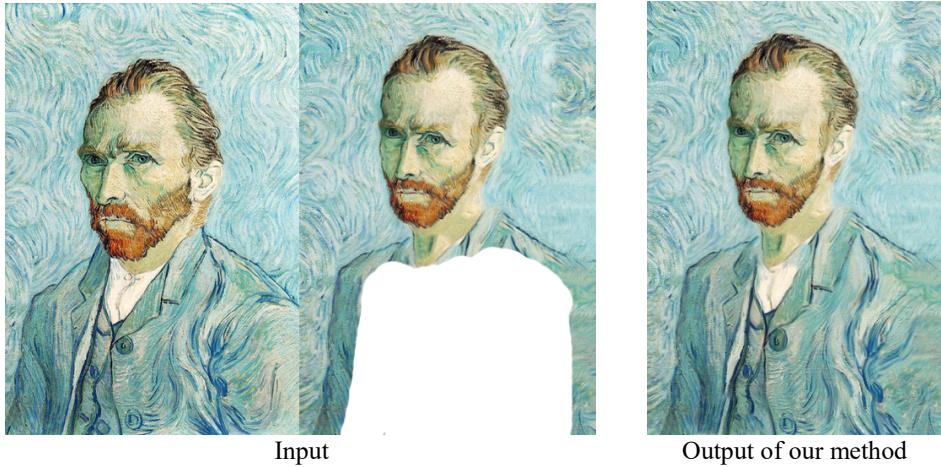
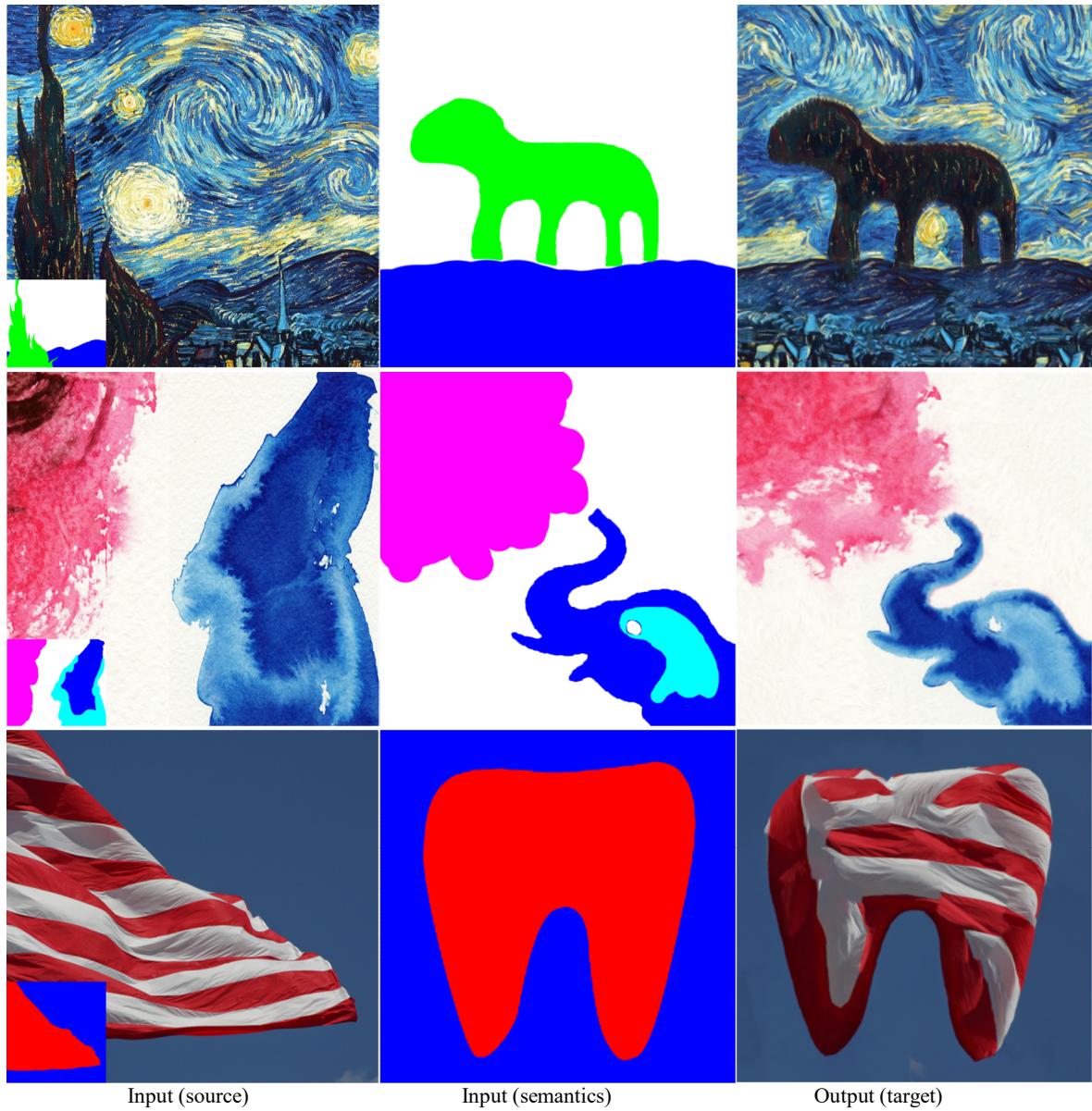
1437 Figure 16. Results with state-of-the-art image completion methods. 1487  
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Figure 17. Results with state-of-the-art image completion methods.

## 1600 4. Results with drastically different semantic inputs. 1650

1601 Our method can also handle images with drastically different semantic inputs. But it is hard for people to tell where the 1651  
1602 internal structure to generate in target is reasonable, if salient structure in image and no similar with semantic inputs. The 1652  
1603 images with nearly-homogeneous textures can be better transferred of this part. 1653  
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1643 Figure 18. Results with drastically different semantic inputs. Image courtesy of Lukáč *et al.* [12]. 1693

1700 5. Failure cases.

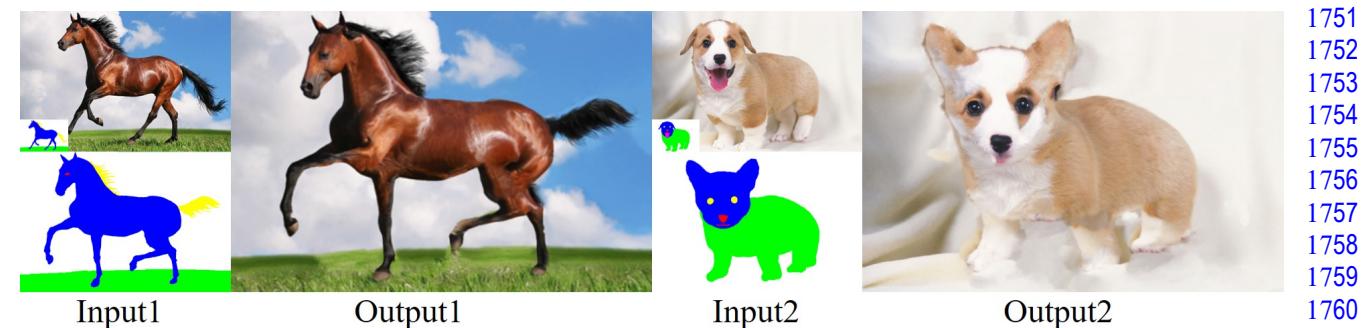


Figure 19. Failure cases due to the illumination in the background of real image. Image courtesy of Zcool [1].

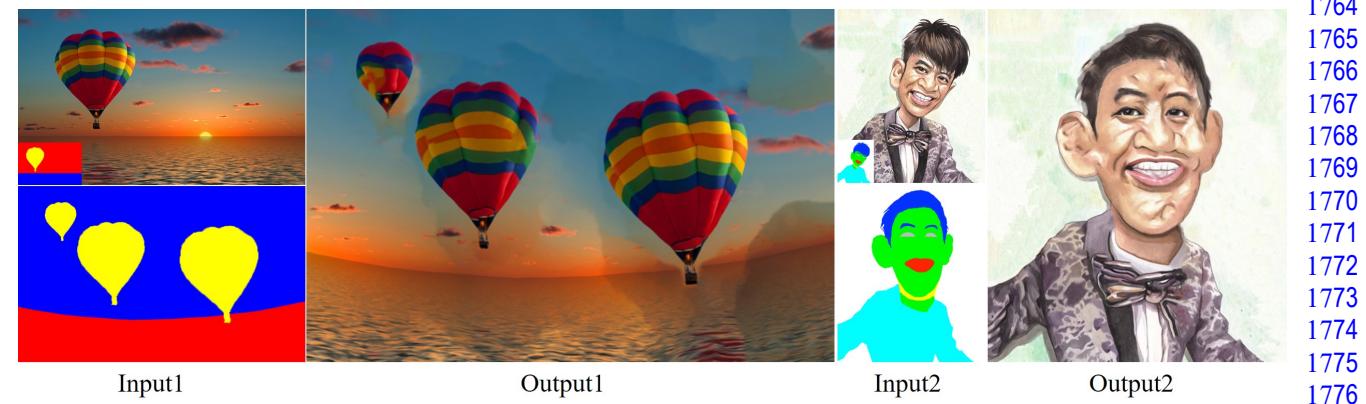


Figure 20. Failure cases due to the fading color in the background of real image (example 1) and the disability to produce scale geometric transfer (example 2), like exaggerations of the face and the ears. Image courtesy of Zcool [1].

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1802	Bibliography	1852
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1804	[2] A. J. Champandard. Semantic style transfer and turning two-bit doodles into fine artworks. arXiv preprint arXiv:1603.01768, 2016	1854
1805	[3] A. Hertzmann, C. E. Jacobs, N. Oliver, B. Curless, and D. H. Salesin. Image analogies. In Proceedings of the 28th annual conference on Computer graphics and interactive techniques, pages 327–340. ACM, 2001.	1855
1806	[4] J.-B. Huang, S. B. Kang, N. Ahuja, and J. Kopf. Image completion using planar structure guidance. ACM Transactions on Graphics (TOG), 33(4):129, 2014.	1856
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1808	[6] Y. Wexler, E. Shechtman, and M. Irani. Space-time completion of video. IEEE Transactions on pattern analysis and machine intelligence, 29(3), 2007.	1858
1809	[7] C. Barnes, E. Shechtman, A. Finkelstein, and D. B. Goldman. Patchmatch: A randomized correspondence algorithm for structural image editing. ACM Trans. Graph., 28(3):241, 2009.	1859
1810	[8] S. Yang, J. Liu, Z. Lian, and Z. Guo. Awesome typography: Statistics-based text effects transfer. arXiv preprint arXiv:1611.09026, 2016.	1860
1811	[9] S. Darabi, E. Shechtman, C. Barnes, D. B. Goldman, and P. Sen. Image melding: Combining inconsistent images using patch-based synthesis. ACM Trans. Graph., 31(4):82–1, 2012.	1861
1812	[10] J. Lu, C. Barnes, C. Wan, P. Asente, R. Mech, and A. Finkelstein. Decobrush: drawing structured decorative patterns by example. ACM Transactions on Graphics (TOG), 33(4):90, 2014.	1862
1813	[11] Envato. <a href="https://design.tutsplus.com/">https://design.tutsplus.com/</a>	1863
1814	[12] M. Lukáč, J. Fiser, J.-C. Bazin, O. Jamriska, A. Sorkine-Hornung, and D. Sykora. Painting by feature: texture boundaries for example-based image creation. ACM Transactions on Graphics (TOG), 32(4):116, 2013.	1864
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