Supplementary material for ijcai2019 rebuttal

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In this supplementary materials, we provide additional results for rebuttal. First, we explain our network structure with more details (Section 1-3). Second, we present additional experimental results to further illustrate the performance of our proposed network (Section 4).

1 Network framework (Figure 1)

To make it easier to read, we show a more detailed network framwork here. Specifically, we visualized the input and output of the module and refined the illustration of the DAM and GCM modules.

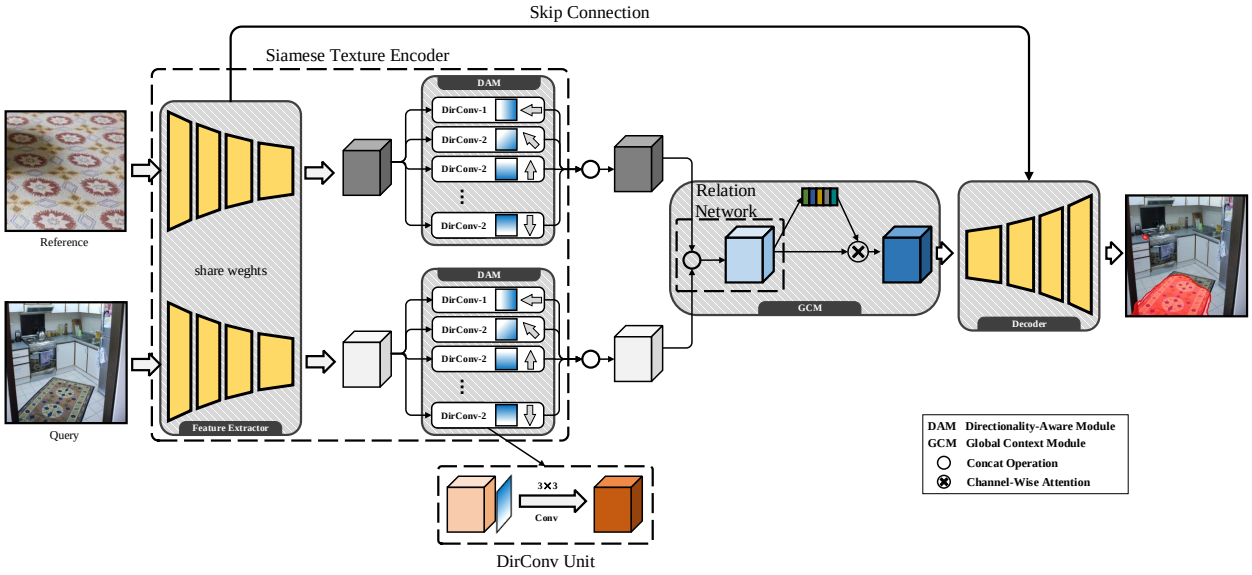
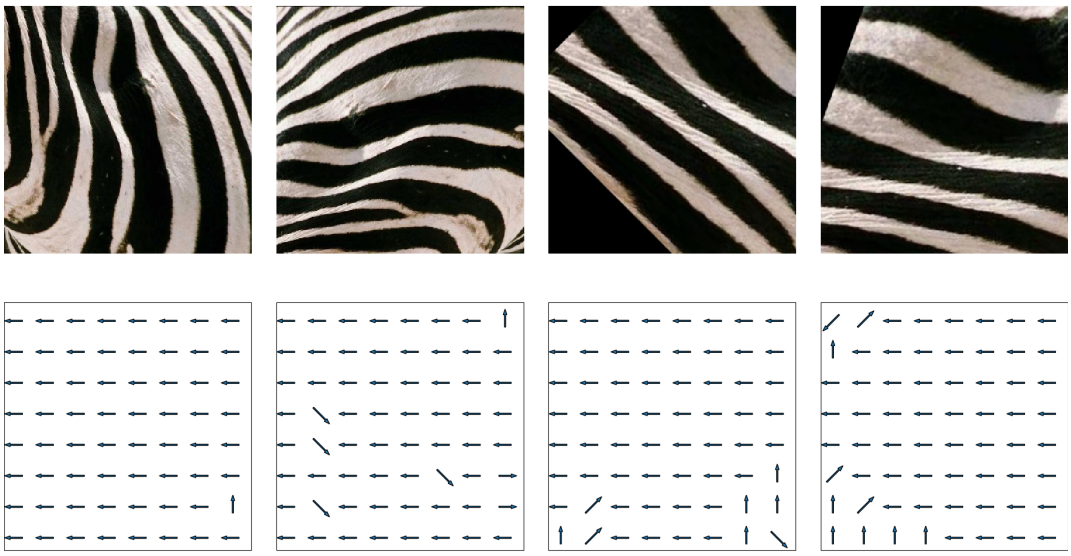


Figure 1: Overall of our OS-TR network.

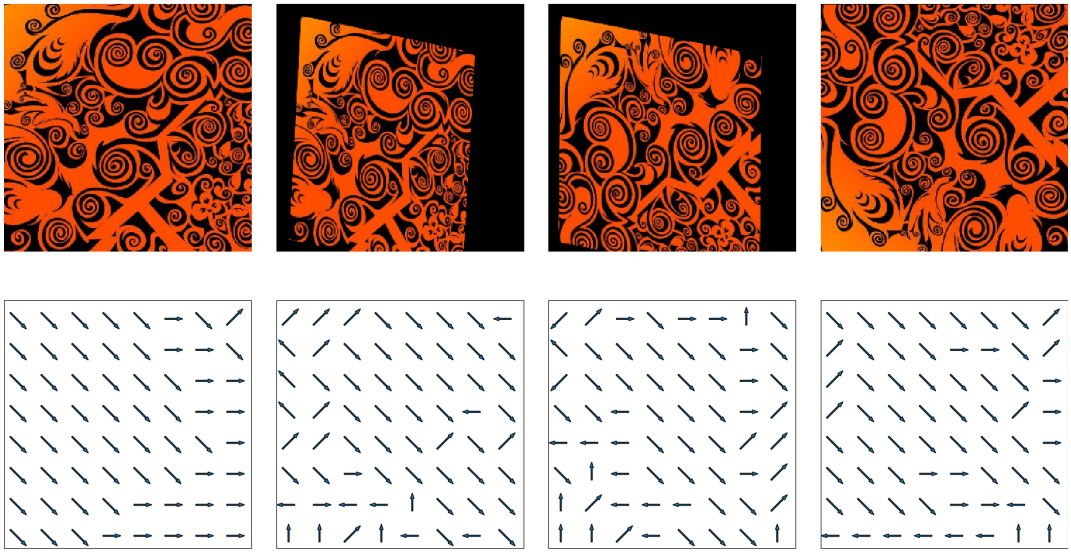
2 Visualization of DAM Module (Figure 2)

We provide a visualization of DAM module to explain it. As show in figure 2, each arrow in the second row represents the direction in which the corresponding texture image is most activated in the DAM module. We choose the one with the

largest value from the 8 directions. We can see that when different spatial deformations are imposed on the texture images, we can still achieve consistent directional feature responses.



(a)



(b)

Figure 2: The first row represents the reference images after affine transformation, and the second row is the corresponding results of visualization. a and b represent two sets of texture image results.

3 The strcture of GCM Module (Figure 3)

As can be seen, GCM module consists of a relation network and a channel-wise attention unit, which accounts for the generation of similarity measurement, and the aggregation of global context with channel-wise features, respectively.

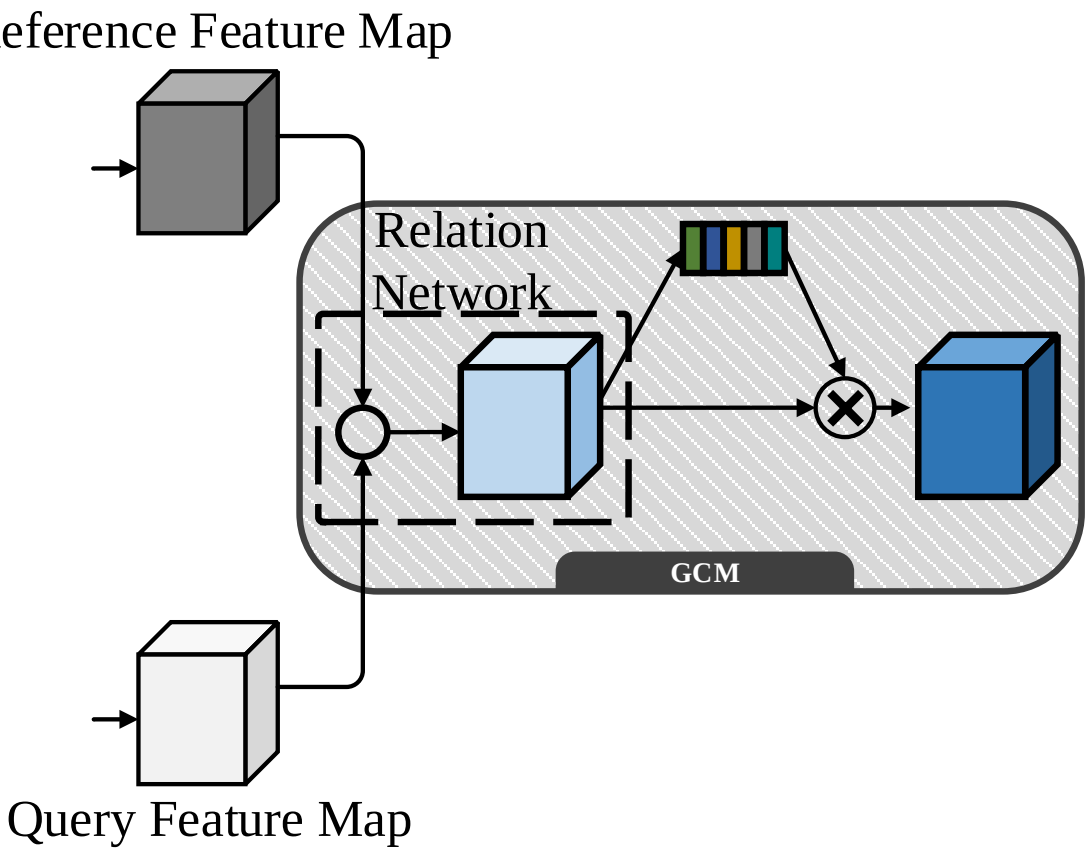


Figure 3: The structure of GCM module.

4 Experiments

4.1 Pascal-5 (Figure 4, Tabel 1)

To validate the effectiveness of our model, we conduct experiments on a more general setting. Since OSLSM is a good benchmark in one-shot segmentation and the code is public, we compare with it on Pascal-5 datasets. The setting of experiment is the same as OSLSM. It can be seen in Tabel 1 that although our network is not designed for this task, we still get comparable results. Figure 4 shows some qualitative results of our model.

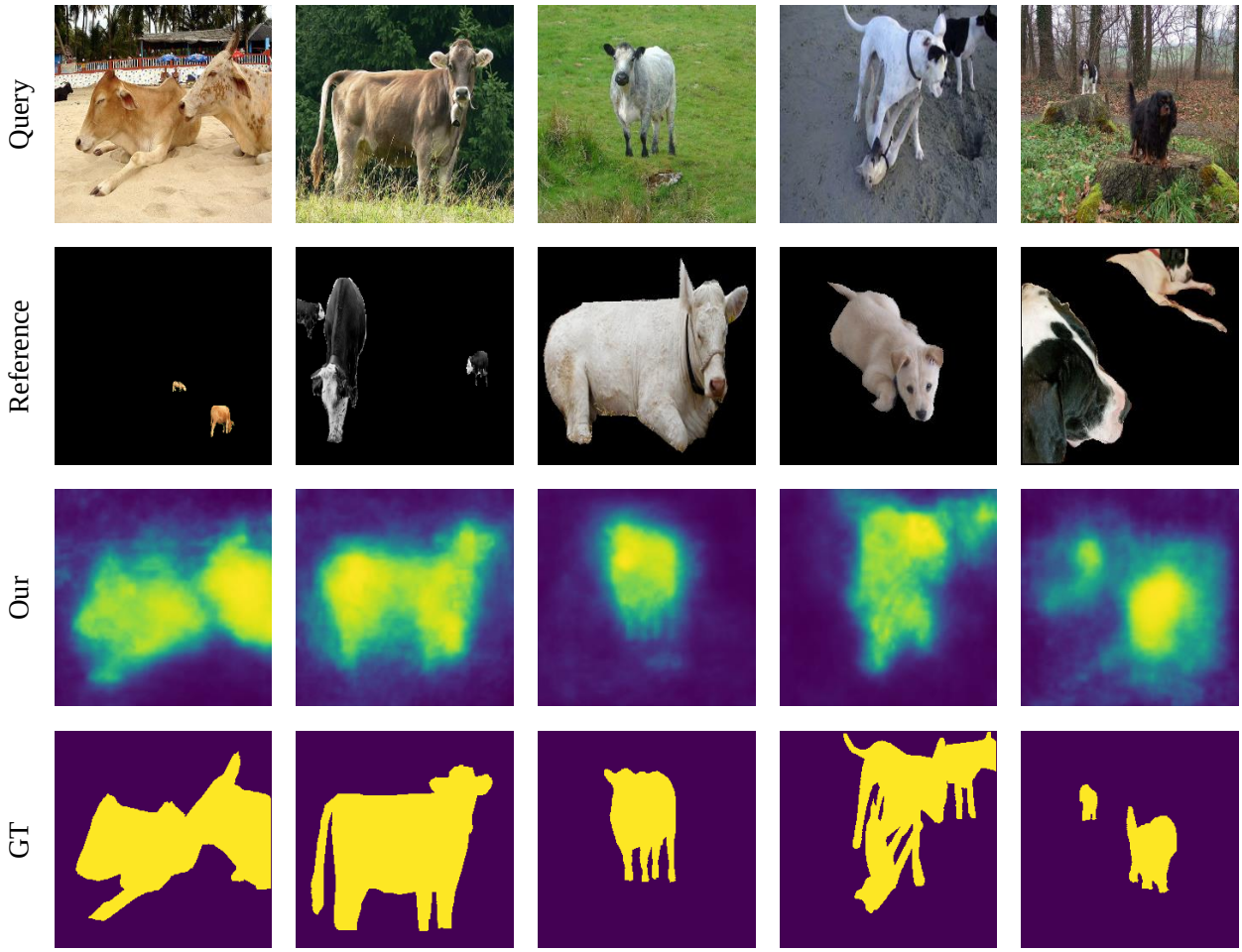


Figure 4: Some qualitative results of our model on Pascal-5 datasets.

Method	i=0	i=1	i=2	i=3	mean
OSLSM	33.6	**55.3**	40.9	33.5	40.8
Our	**37.2**	50.2	**41.8**	**35.1**	**41.1**

Table 1: Our comparison with other methods on the PASCAL-5 datasets in terms of mean IoU.

4.2 FMD (Figure 5, Tabel 2)

To validate the effectiveness of our model on more texture datasets, we perform experiments on FMD datasets. We selected the last five classes of textures in the FMD dataset as test sets, and the rest as training sets. The other setting of experiment is the same as DTD in our paper. As shown in Figure 5 and Tabel 2, we achieve better results compared to other methods.

Figure 5: Some qualitative results of our model on FMD datasets.

Method	IoU
OSTC	0.216
OSLSM	0.326
Our	**0.357**

Table 2: Our comparison with other methods on the FMD datasets in terms of mean IoU.

4.3 Opensurface (Figure 6)

To validate the effectiveness of our model on large-scale datasets, we present the subjective and objective results in the Pascal-5 datasets as shown above. We also show some subjective test results of Opensurface(OS) images in Figure 6 of our original paper, here we add some more. As can be seen, our model can still achieve qualitative results in natural scenes even though it is trained on synthetic datasets.

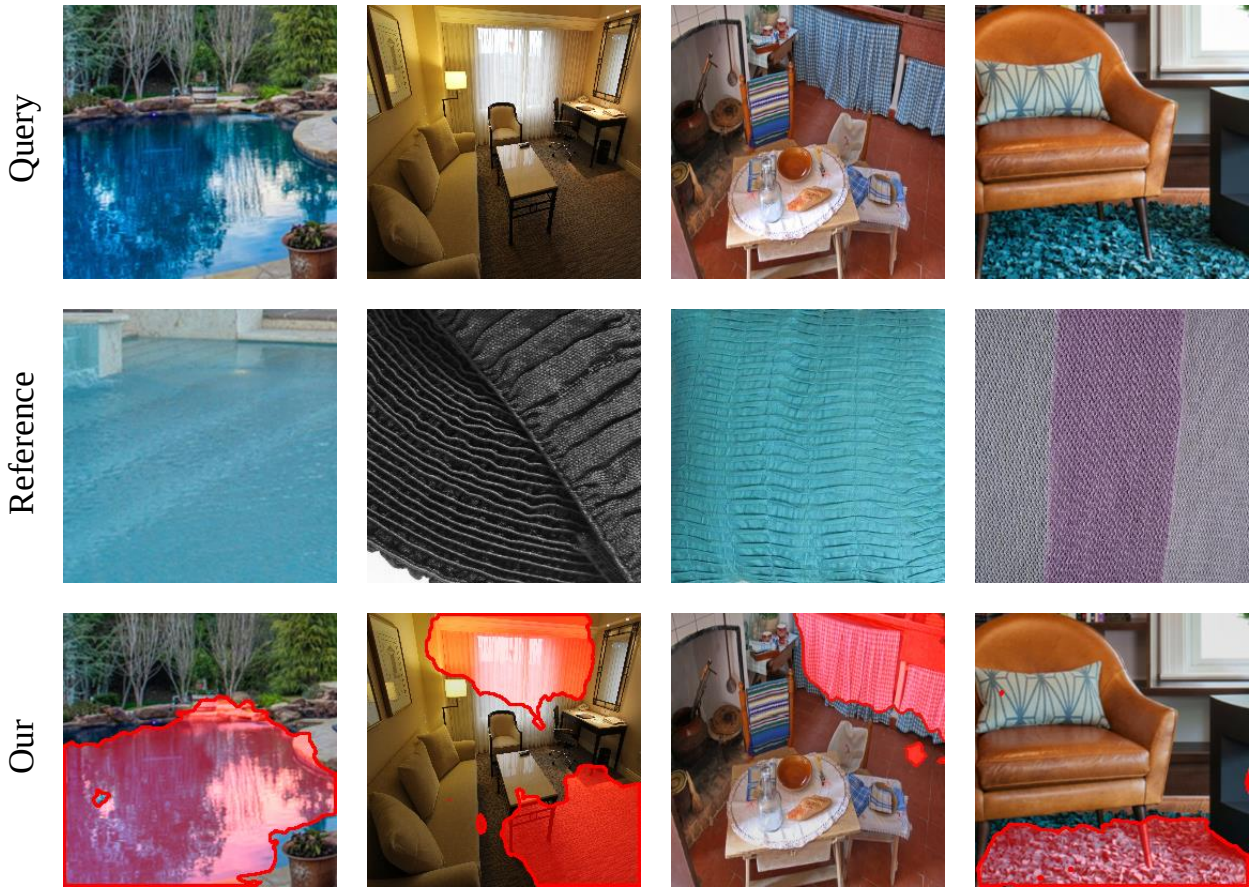


Figure 6: Some qualitative results of our model on OS datasets.