

1 We appreciate the feedback from R1, R2, and R3. We address the questions below and will revise our paper accordingly.
2 [\[R1 & R3 Sufficient discussion of the difference and direct empirical comparisons with Cycle-wgan \[7\]\]](#)
3 The main novelty of our work is the integration of DUAL structure mechanism and visual-semantic consistencies (VC)
4 into GAN for bidirectional alignment and alleviating semantic loss. In contrast, Cycle-wgan only consists of one GAN
5 and a pre-trained regressor, which only minimizes L2 norm between the reconstructed and real semantics. Cycle-wgan
6 is rather weak and unreliable to preserve high-level semantics via the Euclidean distance (Line 88-91). Compared to
7 that, thanks to the dual-GAN structure and VC loss, DASCN explicitly supervises that the generated features have
8 highly discriminative semantic nature on the high-level aspects and effectively preserve semantics via multi-adversarial
9 learning in both form and content (Line 45-62). Specifically, we build two GANs for visual & semantic generation and
10 two consistency regularization are accordingly devised: 1) semantic consistency to align the centroid of the synthetic
11 semantics and real semantic, 2) visual consistency for not only matching the real visual features but also enforcing
12 synthetic semantics to have highly discriminative nature to further generate effective visual features. Compared to
13 the Cycle-wgan that only minimizes L2 norm of reconstructed & real semantics, the novelty being introduced is the
14 tailor-made semantic high-level consistency at a finer granularity. We not only generate synthetic semantic features from
15 the synthetic visual features, but also further generate synthetic visual features again based on the synthetic semantic
16 features, which is constrained by VC to ensure the generated features have highly discriminative semantic nature. Such
17 bidirectional synthesis procedures boost the quality of synthesized instances collaboratively via DUAL structure.
18 To address your comment on direct empirical comparisons, we conducted the following experiments: (1) Compare
19 Cycle-wgan with DASCN w/o VC, and the full DASCN on four benchmarks. (2) Use the same semantic features
20 (per-class sentences (stc)) as Cycle-wgan for DASCN on CUB dataset. (3) Add FLO as a benchmark. As shown in Table
21 1, results on four benchmarks consistently demonstrate the superiority of DASCN. DASCN w/o VC also outperforms
22 Cycle-wgan in most cases. We will add the discussions and more empirical comparisons in the final version.
23 Table 1: Comparison between the reported results of Cycle-wgan [7] and our model. * indicates employing the same semantic
features (per-class sentences (stc)) as Cycle-wgan on CUB.

Method	FLO			CUB*			SUN			AWA1		
	ts	tr	H	ts	tr	H	ts	tr	H	ts	tr	H
Cycle-wgan [1]	59.1	71.1	64.5	46.0	60.3	52.2	48.3	33.1	39.2	56.4	63.5	59.7
DASCN w/o VC	58.5	78.8	67.2	46.3	60.5	52.5	42.9	37.3	39.9	57.7	68.6	62.7
DASCN	60.5	80.4	69.0	47.4	60.1	53.0	42.4	38.5	40.3	59.3	68.0	63.4

24 [\[R1 Ablation study on CUB and SUN\]](#) We
25 conducted ablative experiments on CUB and
26 SUN (Table 2), which demonstrate different
27 components promote each other and work
28 together to improve performance of DASCN.
29 We will add the results in the final version.
30 [\[R1 Typo in Figure 3\(b\) and other mistakes\]](#)
31 We would like to clarify that DASCN model
32 does perform better than DASCN w/o SC.
33 There is a typo in the legend of Figure
34 3(b). The magenta polyline should repre-
35 sent DASCN while the red one should be DASCN w/o SC. We will correct these typos in the final version.

Table 2: Ablation study on SUN and CUB datasets with GZSL setting.

Methods	SUN			CUB		
	ts	tr	H	ts	tr	H
WGAN-baseline	42.6	36.6	39.4	43.7	57.7	49.7
Dual-WGAN + \mathcal{L}_{SC}	42.9	37.3	39.9	44.9	58.5	50.8
Dual-WGAN + \mathcal{L}_{VC}	43.5	36.5	39.7	45.2	59.1	51.2
DASCN	42.4	38.5	40.3	45.9	59.0	51.6

36 [\[R3 The contribution is for ZSL part more than GZSL part\]](#)

37 We need to clarify that GZSL is totally different problem from ZSL, and is much more challenging [27]. There is no
38 inclusive relationship between GZSL and ZSL. ts is measured in GZSL setting, and is not related to the performance
39 of ZSL. Thus the good performance on ts cannot lead to the conclusion that "The contribution is for ZSL part more
40 than GZSL part." On the contrary, it exactly indicates the efficacy of DASCN under the GZSL setting. [27] has shown
41 that performance of existing ZSL methods drops significantly in GZSL setting, for the seen classes are included in the
42 search space and act as distractors for the instances from unseen classes. DASCN is particularly designed for GZSL to
43 overcome the shortcomings of existing ZSL methods, which are often biased towards seen classes and undermine ts.

44 [\[R3 Results of Cycle-wgan \[7\] in the proposed setting\]](#)

45 We have provided the direct empirical comparisons with Cycle-wgan in the proposed setting in Section 4.3 (Table 2 in
46 our paper). On AWA1 and SUN datasets, DASCN has a significant edge over Cycle-wgan. To further address your
47 comment, we also conducted more experiments to compare DASCN and Cycle-wgan, please refer to the first rebuttal
48 bullet. Results (in Table 1 above) on four benchmark datasets consistently demonstrate the superiority of DASCN.

49 [\[R3 Clarification of the difference to Cycle-wgan \[7\]\]](#)

50 The difference of DASCN and Cycle-wgan is not "changes the consistency loss to class-wise loss". Please refer to the
51 first rebuttal bullet, where we discussed the advantages of DASCN over Cycle-wgan in both methodology and empirical
52 results. We hope to address your questions and sincerely appreciate it a lot if you could update your score accordingly.