Resisting Large Data Variations via Introspective Transformation Network
Supplementary Material

1. Additional Results for Choice w.r.t Generative Models

We present additional comparisons between AC-GATN and ITN on several datasets, including affNIST, SVHN and CIFAR-10, to further verify our choice w.r.t. generative models, i.e., INs rather than GANs. All the results show ITN constantly outperforms AC-GATN in a substantial margin.

1.1. affNIST

The testing errors of ITN(B-CNN) and AC-GATN(B-CNN) on the affNIST dataset is shown in Figure 1.
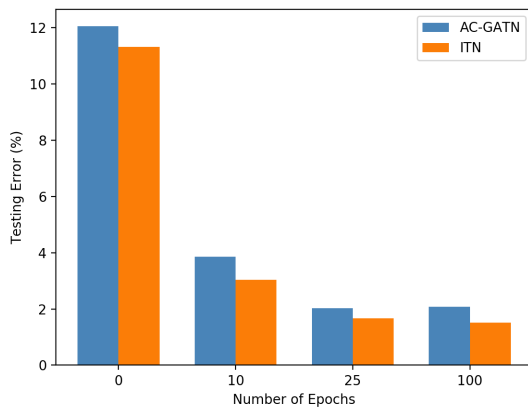

Figure 1. Testing errors of AC-GATN (B-CNN) and ITN (B-CNN) on the affNIST dataset.

1.2. SVHN

The testing errors of ITN(B-CNN) and AC-GATN(B-CNN) on the SVHN dataset is shown in Figure 2.

1.3. CIFAR-10

The testing errors of ITN(B-CNN) and AC-GATN(B-CNN) on the CIFAR-10 dataset is shown in Figure 3.
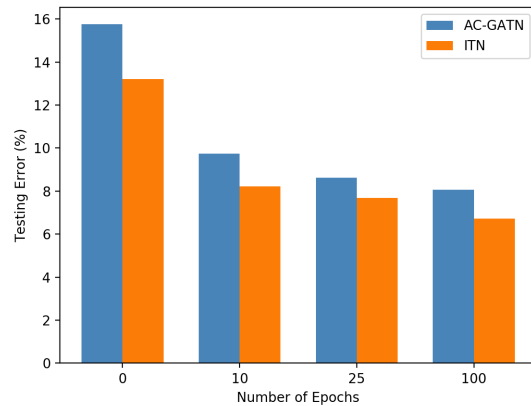

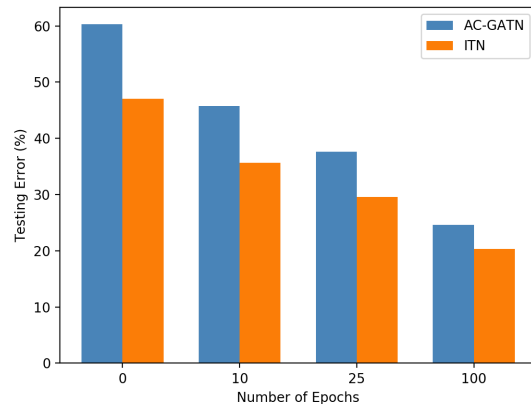Figure 2. Testing errors of AC-GATN (B-CNN) and ITN (B-CNN) on the SVHN dataset.

Figure 3. Testing errors of AC-GATN (B-CNN) and ITN (B-CNN) on the CIFAR-10 dataset.

1.4. Cross Dataset Generalization and Limited Training Data

We also present the comparison between ITN and AC-GATN on the tasks of cross dataset generalization (Section 4.1 in the paper) and limited training data (Section 4.1 in the

paper). The limited training data task has multiple settings and we only compare ITN with AC-GATN under 1% of the training data for the purpose of illustration. The results of ITN(B-CNN) and AC-GATN(B-CNN) on these two tasks are shown in Figure 4 and Figure 5, respectively.
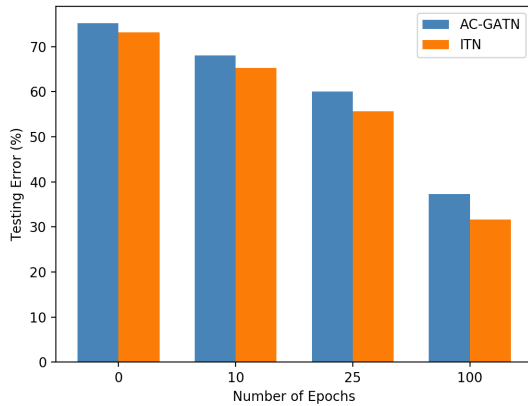

Figure 4. Testing errors of AC-GATN (B-CNN) and ITN (B-CNN) on the cross dataset generalization task.
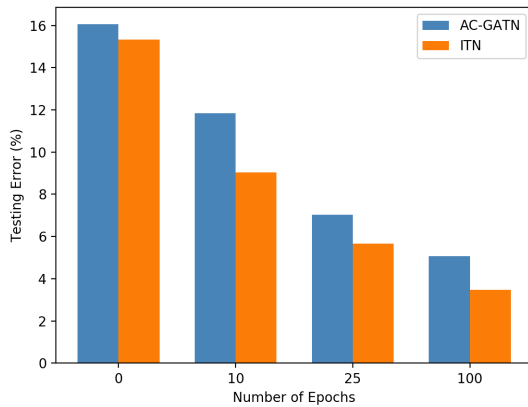

Figure 5. Testing errors of AC-GATN (B-CNN) and ITN (B-CNN) on the limited training data (1%) task.