Supplementary Material for ICCV 2021 Paper #6632
FLAR: A Unified Prototype Framework for Few-sample Lifelong Active Recognition

Lei Fan, Peixi Xiong, Wei Wei and Ying Wu
Northwestern University, 2145 Sheridan Road, Evanston, IL, USA
{leifan, peixixiong2018, weiwei2022}@u.northwestern.edu, yingwu@northwestern.edu

Abstract

This document is the supplementary material of the ICCV paper #6632. We provide results of the t-SNE visualization of prototypes, the classifier activations between steps, and the video result of the ShapeNet dataset [1].

1. The t-SNE visualization of prototypes

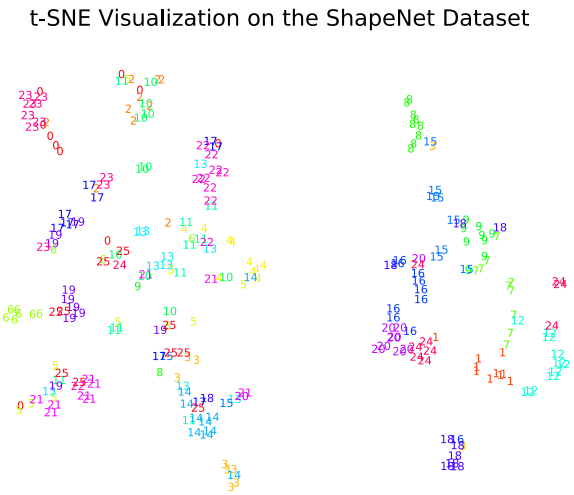
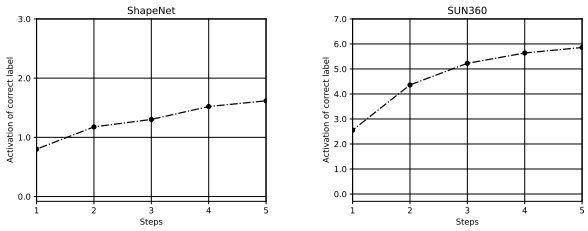


Figure 1. A t-SNE visualization of the features learned by the proposed approach on the ShapeNet dataset [1]. Each feature is represented by its category label.

We show a sample t-SNE visualization of learned features by our approach in Figure 1. We randomly select 10 features for each category after performing our method on the testing set of the ShapeNet. The features from the same category are located close to each other, which, in other words, demonstrates the effectiveness of the proposed method in learning their prototypes.

2. The classifier activations between steps



(a) ShapeNet (b) SUN360

Figure 2. The classifier activations of the correct category between steps on both the ShapeNet [1] and the SUN360 dataset [2].

As shown in Figure 2, we demonstrate the average classifier activations of the correct category at each step. The classifier activations reflect the distance between the current feature and correct category prototypes. Our approach actively chooses steps leading to more discriminative features.

3. The video result of the ShapeNet dataset

We give more qualitative results of our approach on the ShapeNet dataset [1] in the video.

References

[1] Angel X Chang, Thomas Funkhouser, Leonidas Guibas, Pat Hanrahan, Qixing Huang, Zimo Li, Silvio Savarese, Manolis Savva, Shuran Song, Hao Su, et al. Shapenet: An information-rich 3d model repository. *arXiv preprint arXiv:1512.03012*, 2015. 1

[2] Jianxiong Xiao, Krista A Ehinger, Aude Oliva, and Antonio Torralba. Recognizing scene viewpoint using panoramic place representation. In *IEEE Conference on Computer Vision and Pattern Recognition*, 2012. 1