Supplementary Material

Anonymous CVPR submission

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1. Details of the experimental protocol

1.1. PACS dataset

This section presents different tasks' domain distribution and class distribution for the four scenarios: DIL, smooth-DIL, CIL, and smooth-CIL. For better visualization, we map the domain label and class label as follows:

- **Class labels** : "dog": 0, "elephant": 1, "giraffe": 2, "guitar": 3, "horse": 4, "house": 5, "person": 6;
- **Domain labels** : "art_painting": "A", "cartoon": "C", "photo": "P", "sketch": "S".

DIL The class distribution of DIL is shown in Fig. 1, and the domain distribution of DIL is shown in Fig. 2.

smooth-DIL We randomly generate three experiments: smooth-DIL1 is shown in Fig. 3 and Fig. 4; smooth-DIL2 is shown in Fig. 5 and Fig. 6; smooth-DIL3 is shown in Fig. 7 and Fig. 8.

CIL Same as DIL, the class distribution of CIL is shown in Fig. 9, and the domain distribution of CIL is shown in Fig. 10.

smooth-CIL : smooth-CIL1 is shown in Fig. 11 and Fig. 12; smooth-CIL2 is shown in Fig. 13 and Fig. 14; smooth-CIL3 is shown in Fig. 15 and Fig. 16.

1.2. Cifar100 dataset

In cifar100 dataset, there are 20 superclasses and each superclass contains five subclasses. In our experiments, we consider the superclass label as class-label and the subclass label as domain-label. For better visualization, we map the domain label and class label as follows:

- **Class labels**: aquatic_mammals':0, 'fish':1, 'flowers':2, 'food_containers':3, 'fruit_and_vegetables':4, 'household_electrical_devices':5, 'household_furniture':6, 'insects':7, 'large_carnivores':8, 'large_man-made_outdoor_things':9, 'large_natural_outdoor_scenes':10, 'large_omnivores_and_herbivores':11, 'medium_mammals':12, 'non-insect_invertebrates':13, 'people':14, 'reptiles':15, 'small_mammals':16, 'trees':17, 'vehicles_1':18, 'vehicles_2':19.
- **Domain labels**: Because one superclass has five subclasses, we generate five domains for our experiments. For each domain, we randomly select one subclass from a superclass. Thus, each domain contains 20 subclasses from the different superclass. For simplicity, we use the number as (0,1,2,3,4) to represent the domain label.

DIL The class distribution of DIL is shown in Fig. 17, and the domain distribution of DIL is shown in Fig. 18.

smooth-DIL We randomly generate three experiments: smooth-DIL1 is shown in Fig. 19 and Fig. 20; smooth-DIL2 is shown in Fig. 21 and Fig. 22; smooth-DIL3 is shown in Fig. 23 and Fig. 24.

CIL Same as DIL, the class distribution of CIL is shown in Fig. 25, and the domain distribution of CIL is shown in Fig. 26.

smooth-CIL : smooth-CIL1 is shown in Fig. 27 and Fig. 28; smooth-CIL2 is shown in Fig. 29 and Fig. 30; smooth-CIL3 is shown in Fig. 31 and Fig. 32.

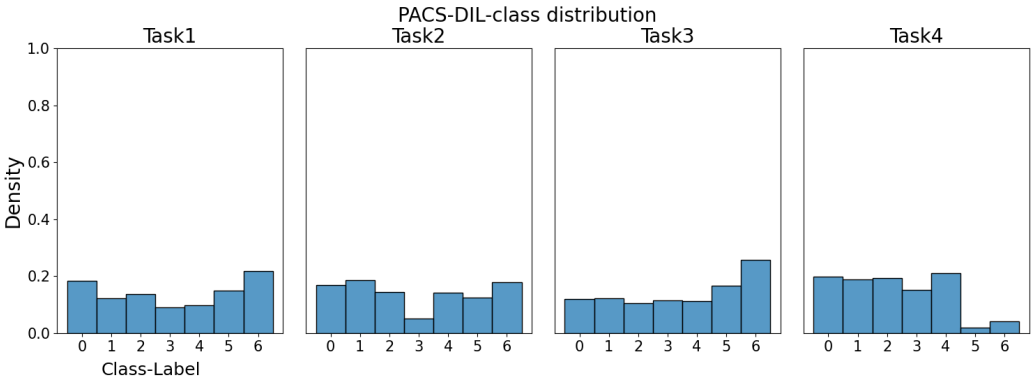

Figure 1. The class distribution of different tasks for PACS's DIL

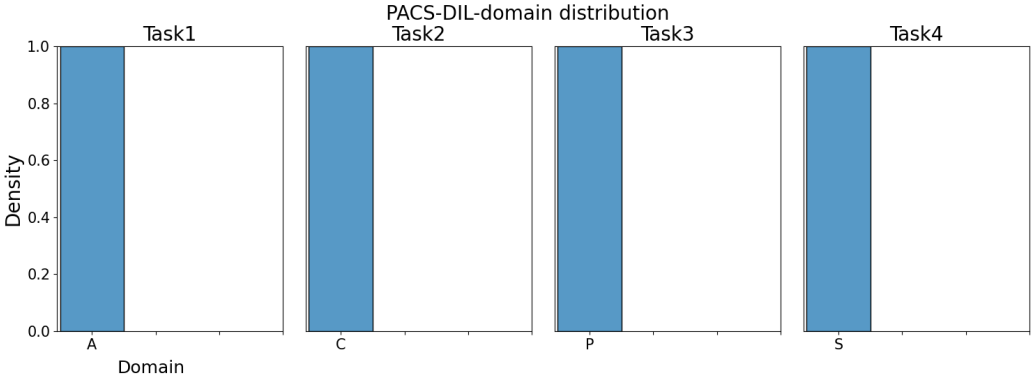

Figure 2. The class distribution of different tasks for PACS's DIL

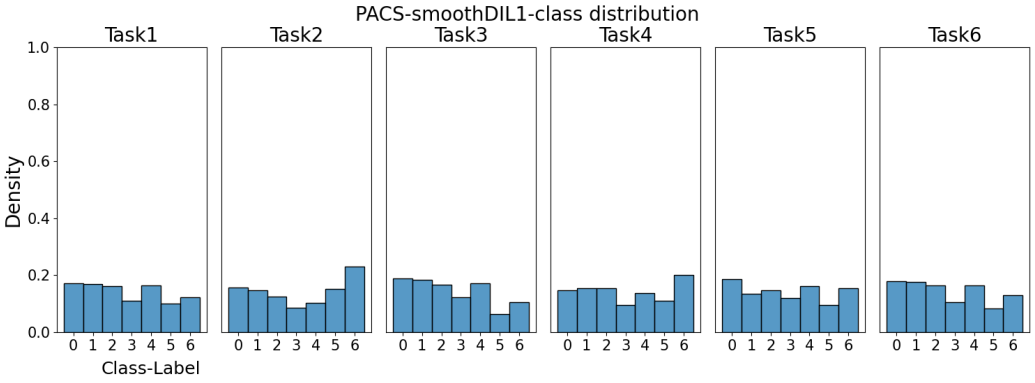

Figure 3. The class distribution of different tasks for PACS's smooth-DIL1

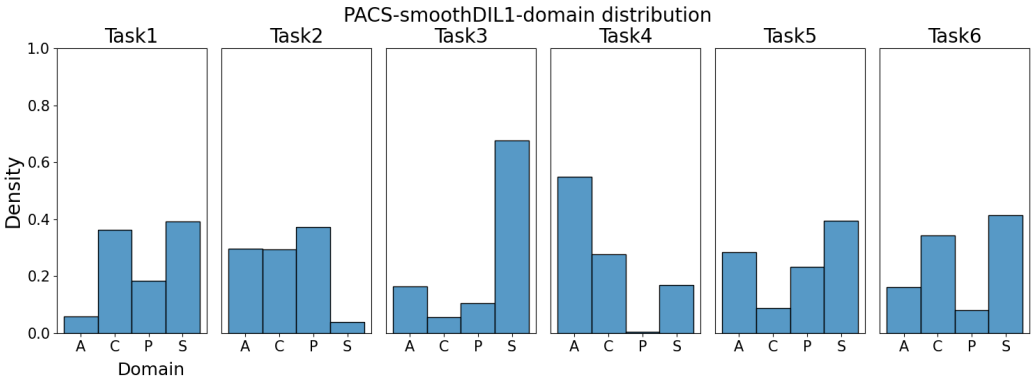

Figure 4. The class distribution of different tasks for PACS's smooth-DIL1

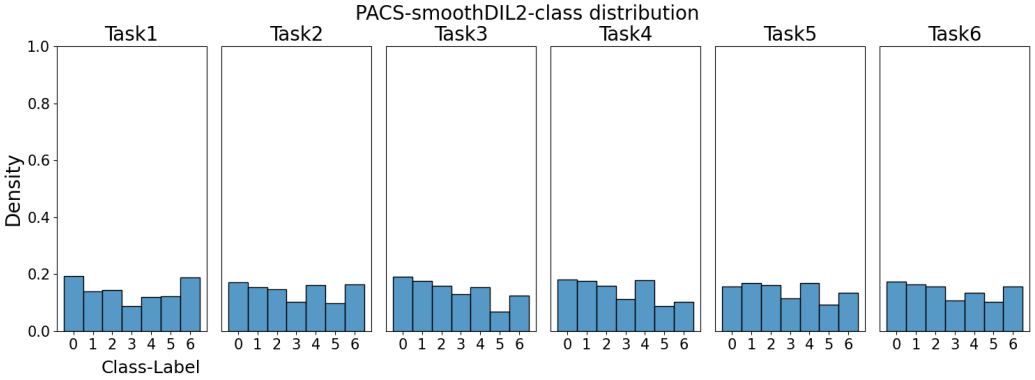

Figure 5. The class distribution of different tasks for PACS's smooth-DIL2

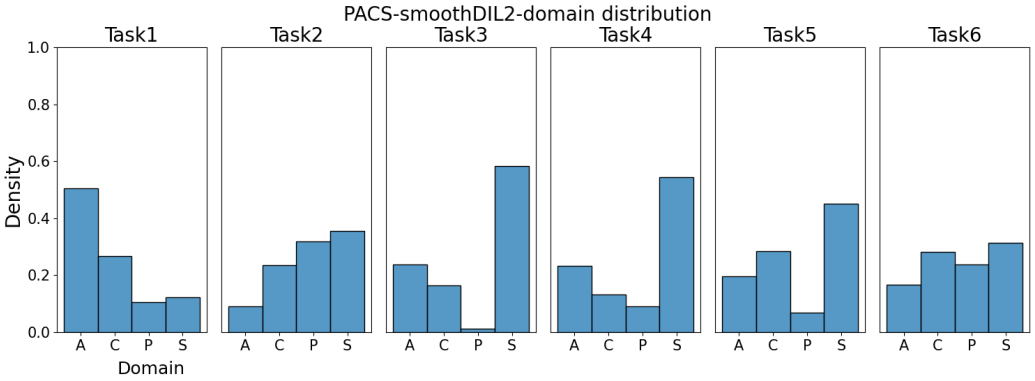

Figure 6. The class distribution of different tasks for PACS's smooth-DIL2

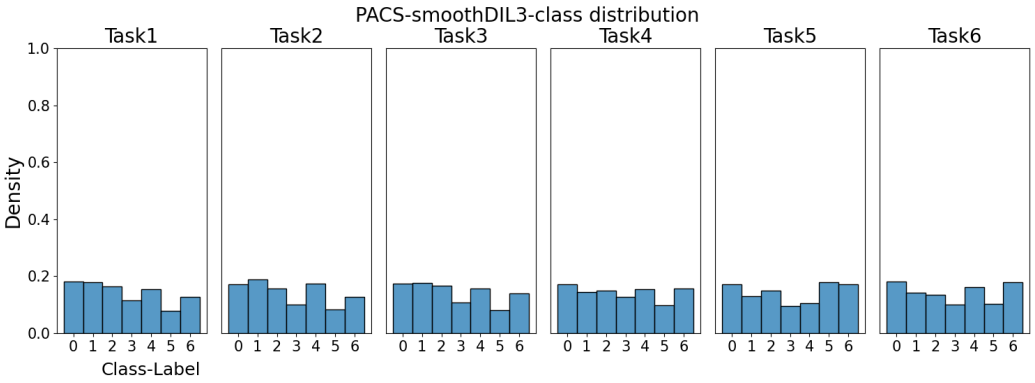

Figure 7. The class distribution of different tasks for PACS's smooth-DIL3

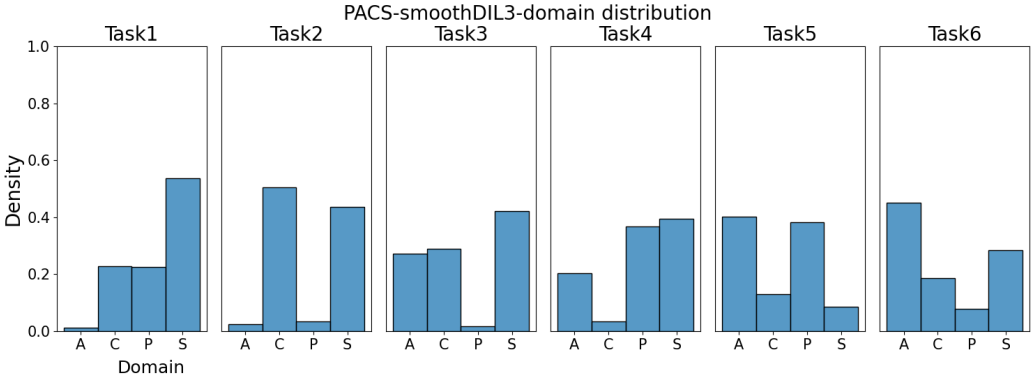

Figure 8. The class distribution of different tasks for PACS's smooth-DIL3

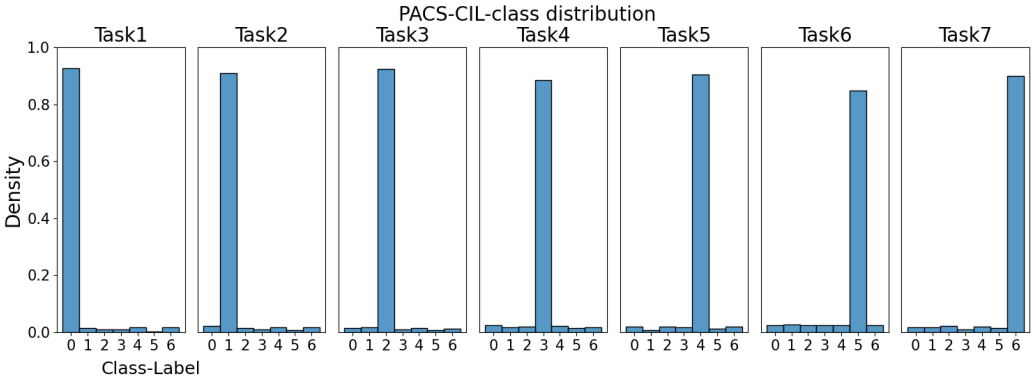

Figure 9. The class distribution of different tasks for PACS's CIL

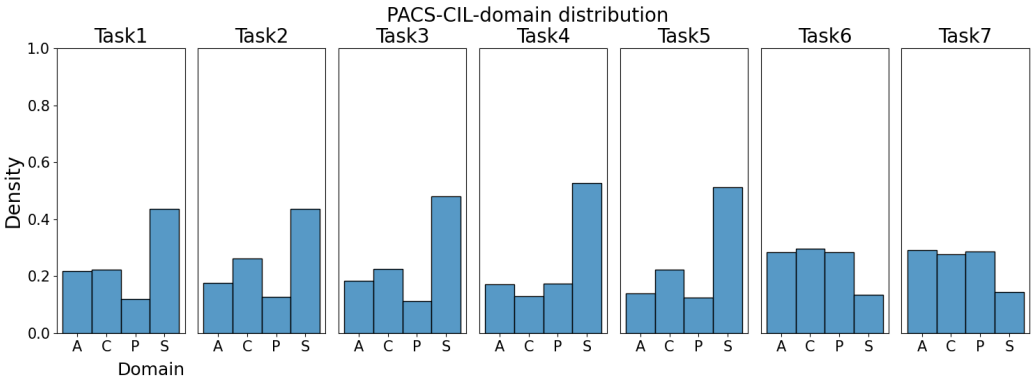

Figure 10. The class distribution of different tasks for PACS's CIL

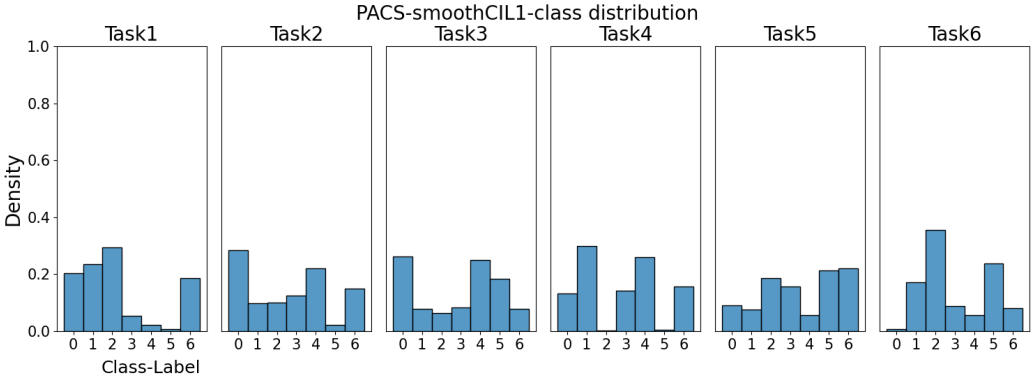

Figure 11. The class distribution of different tasks for PACS's smooth-CIL1

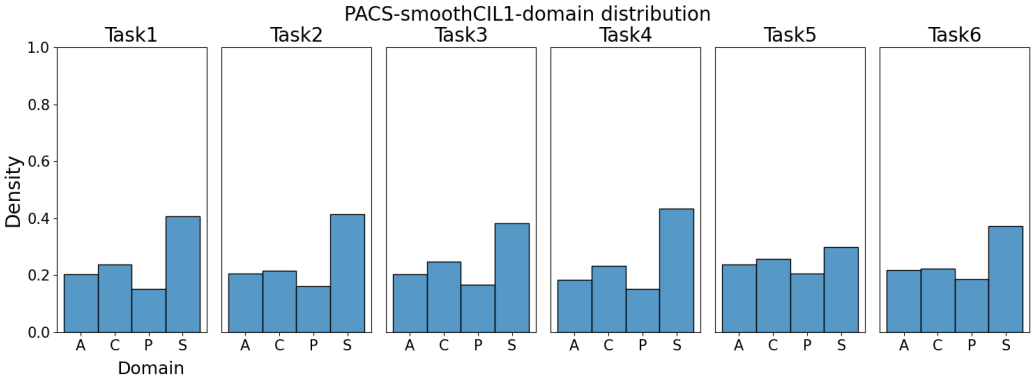

Figure 12. The class distribution of different tasks for PACS's smooth-CIL1

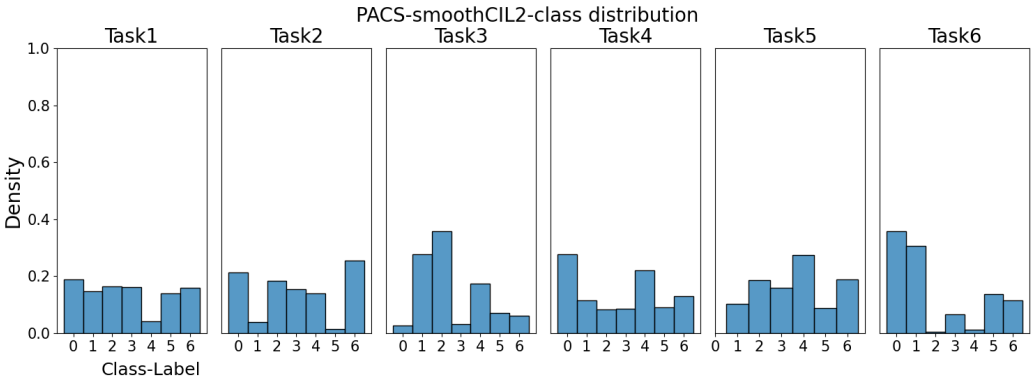

Figure 13. The class distribution of different tasks for PACS's smooth-CIL2

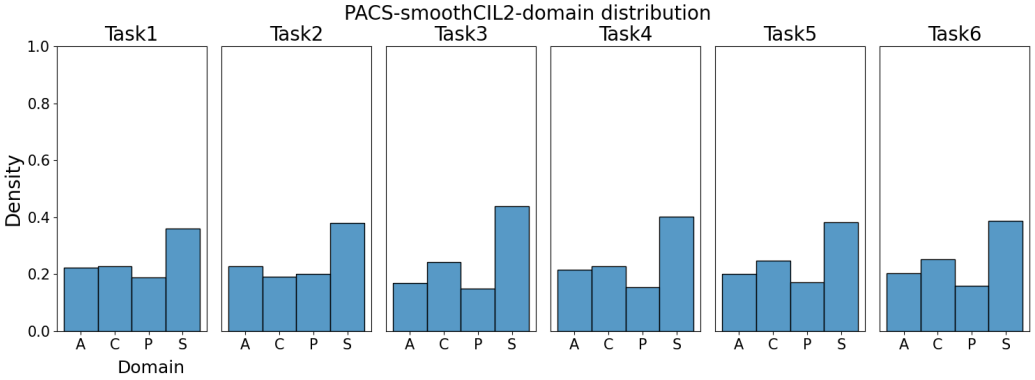

Figure 14. The class distribution of different tasks for PACS's smooth-CIL2

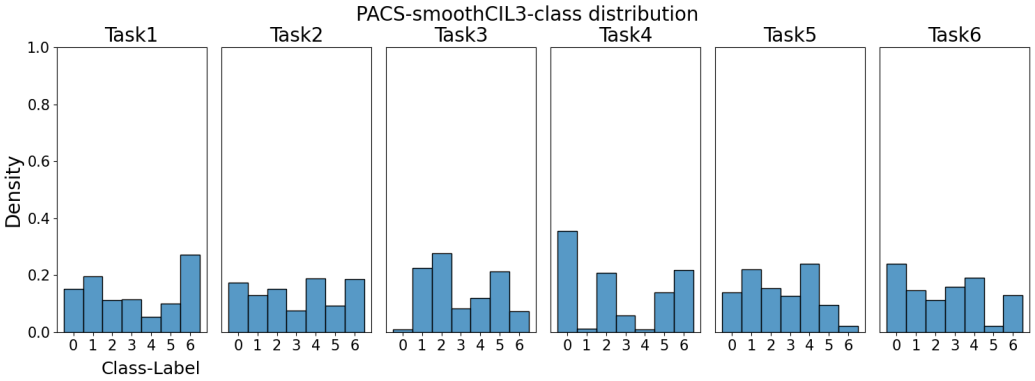

Figure 15. The class distribution of different tasks for PACS's smooth-CIL3

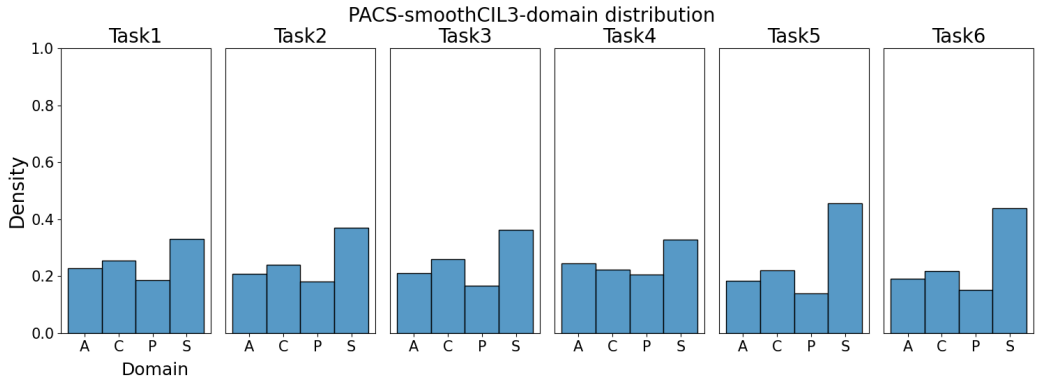

Figure 16. The class distribution of different tasks for PACS's smooth-CIL3

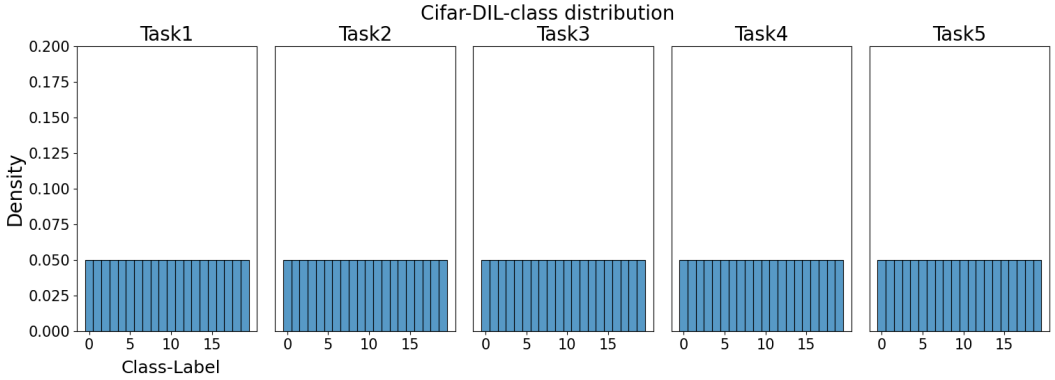

Figure 17. The class distribution of different tasks for Cifar100's DIL

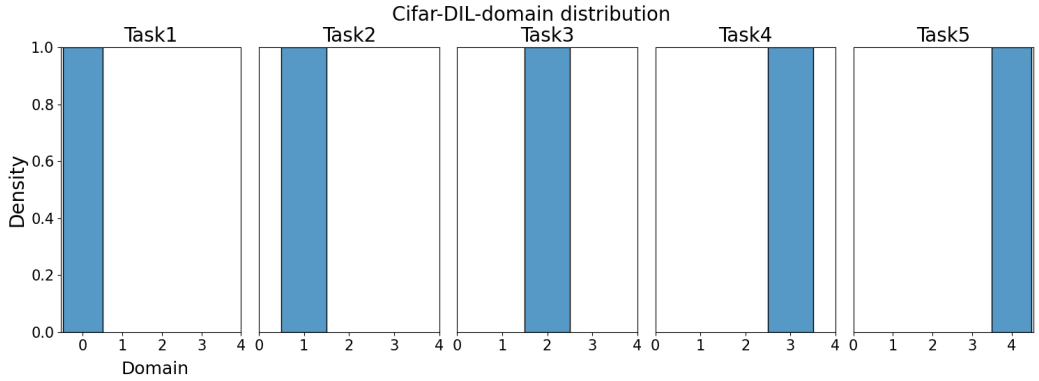

Figure 18. The class distribution of different tasks for Cifar100's DIL

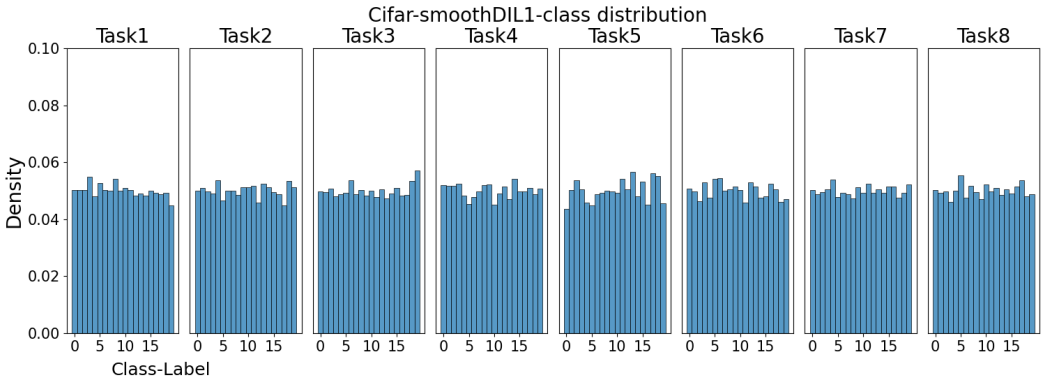

Figure 19. The class distribution of different tasks for Cifar100's smooth-DIL1

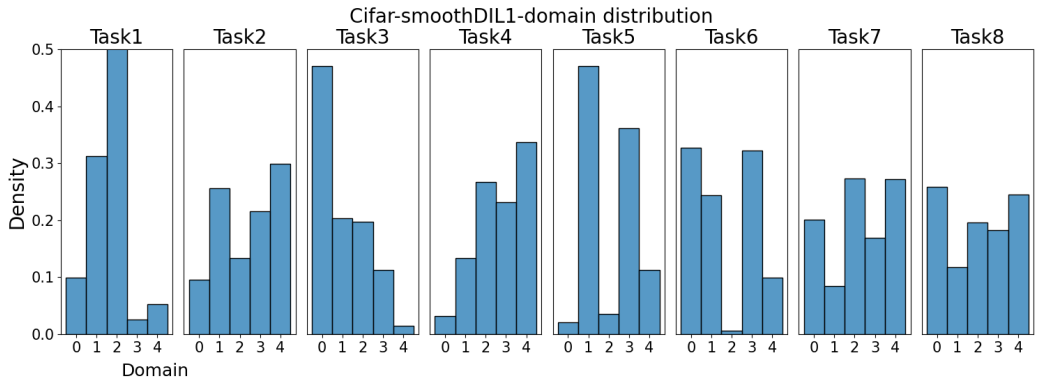

Figure 20. The class distribution of different tasks for Cifar100's smooth-DIL1

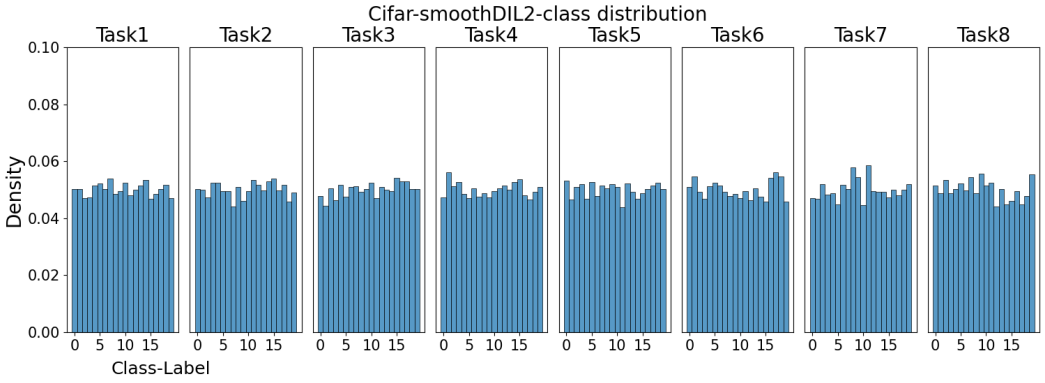

Figure 21. The class distribution of different tasks for Cifar100's smooth-DIL2

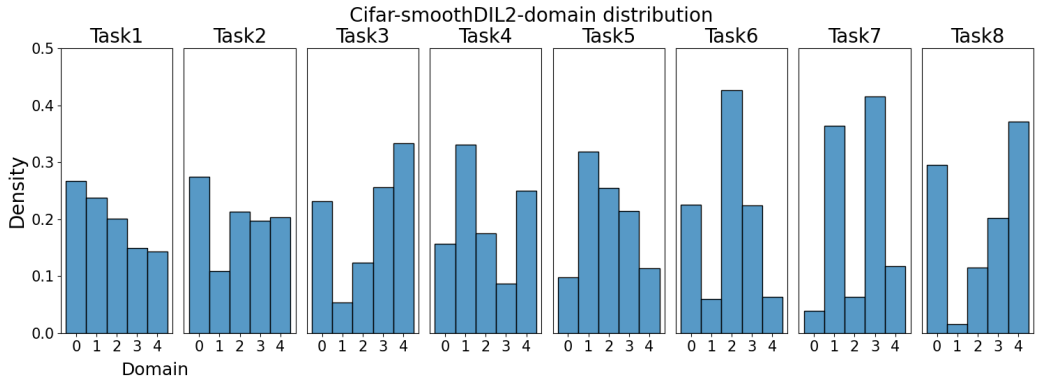

Figure 22. The class distribution of different tasks for Cifar100's smooth-DIL2

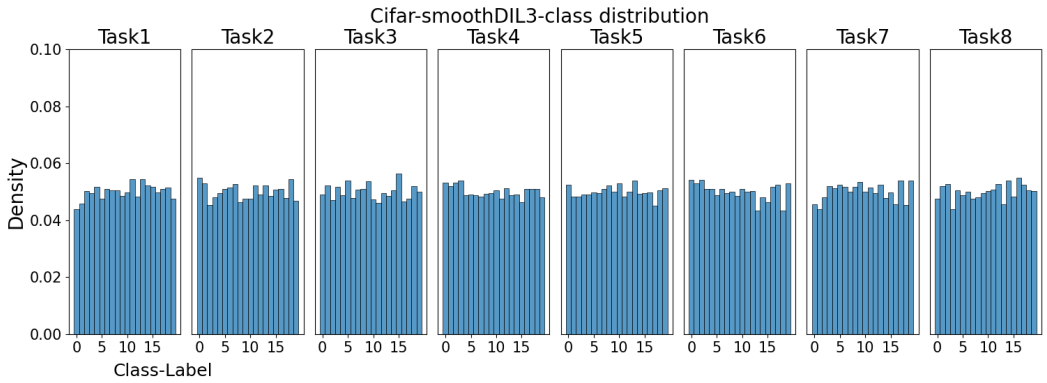

Figure 23. The class distribution of different tasks for Cifar100's smooth-DIL3

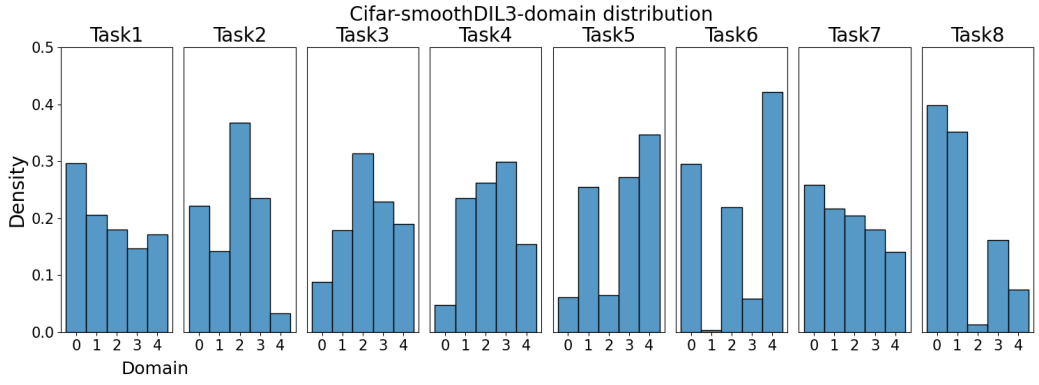

Figure 24. The class distribution of different tasks for Cifar100's smooth-DIL3

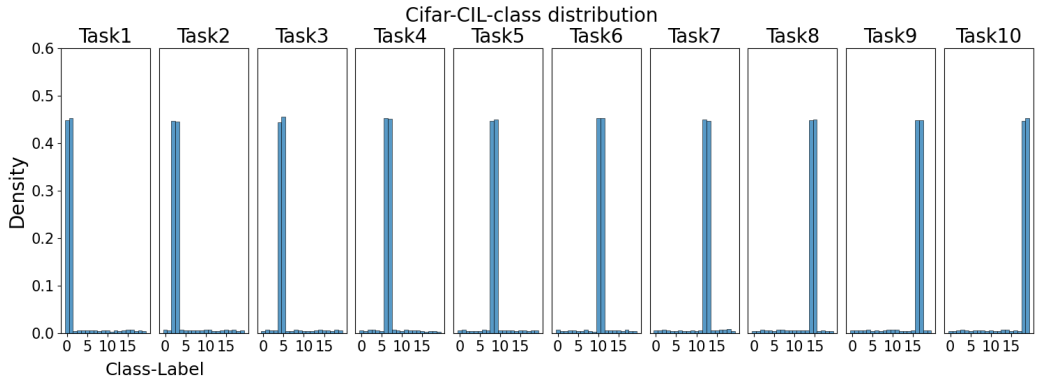

Figure 25. The class distribution of different tasks for Cifar100's CIL

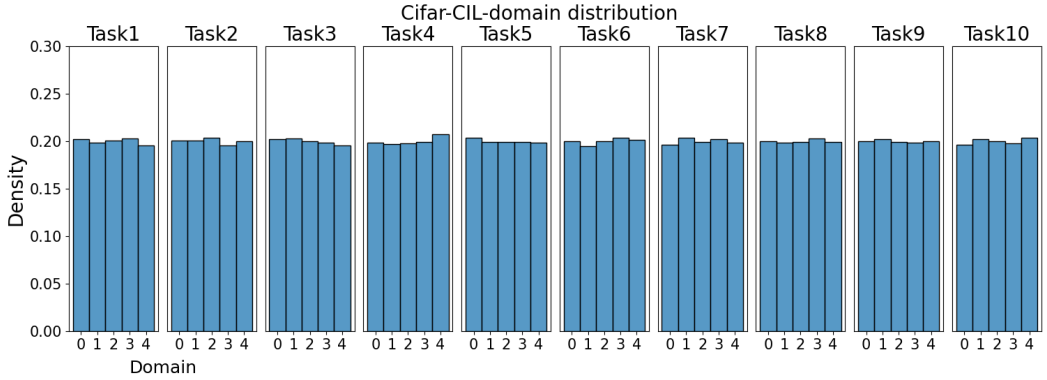

Figure 26. The class distribution of different tasks for Cifar100's CIL

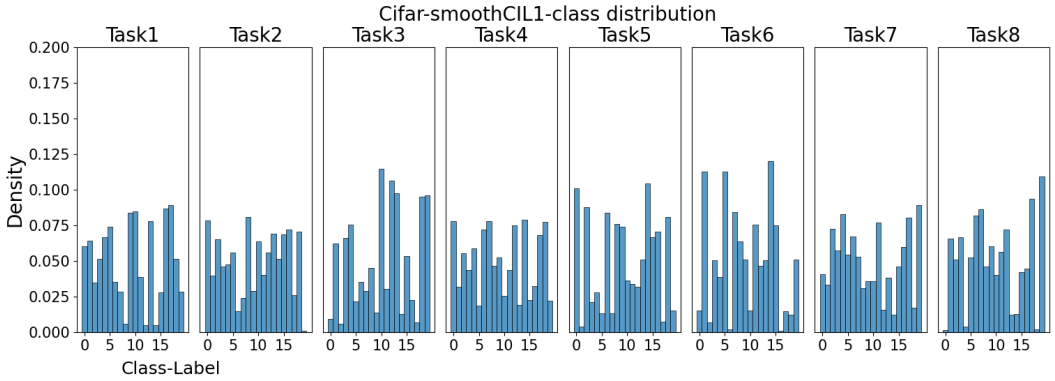

Figure 27. The class distribution of different tasks for Cifar100's smooth-CIL1

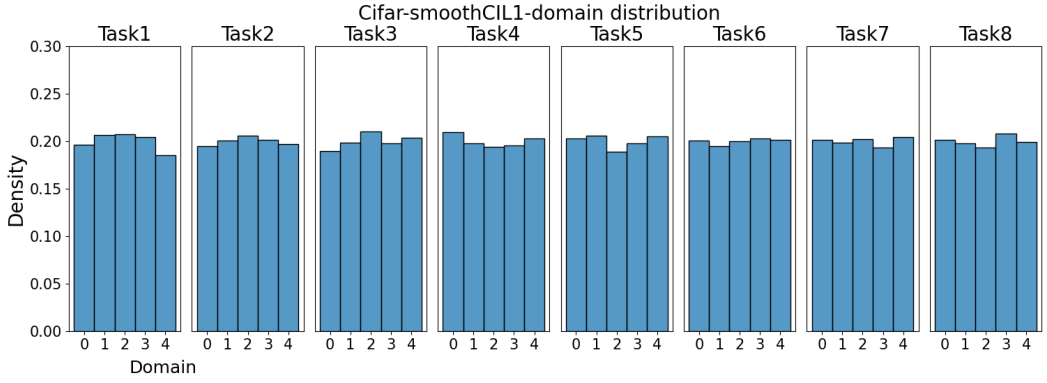

Figure 28. The class distribution of different tasks for Cifar100's smooth-CIL1

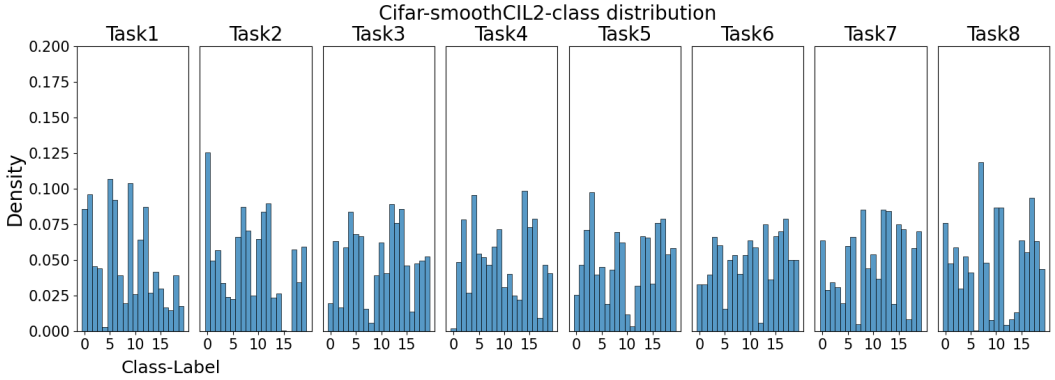

Figure 29. The class distribution of different tasks for Cifar100's smooth-CIL2

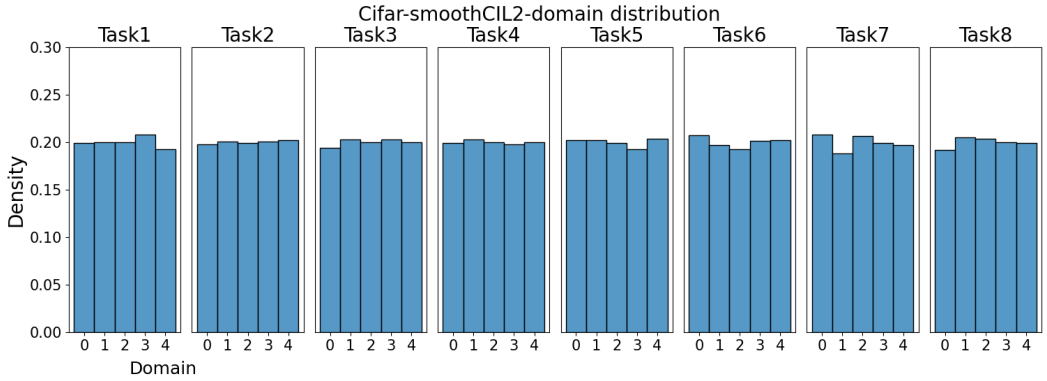

Figure 30. The class distribution of different tasks for Cifar100's smooth-CIL2

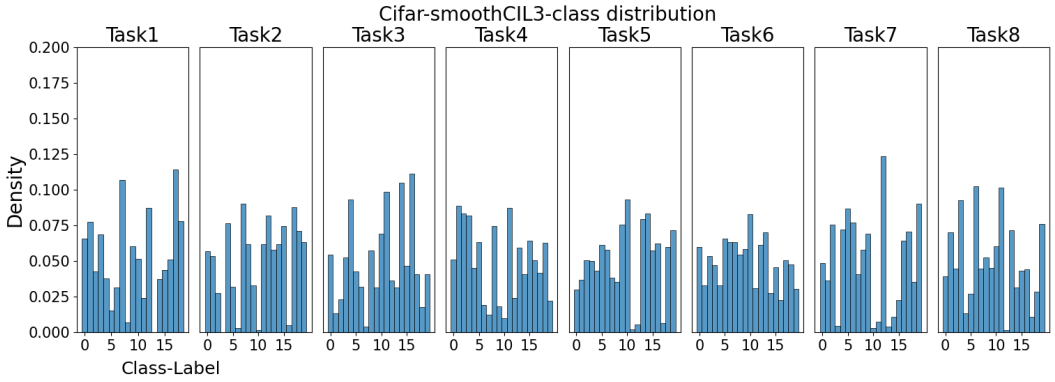

Figure 31. The class distribution of different tasks for Cifar100's smooth-CIL3

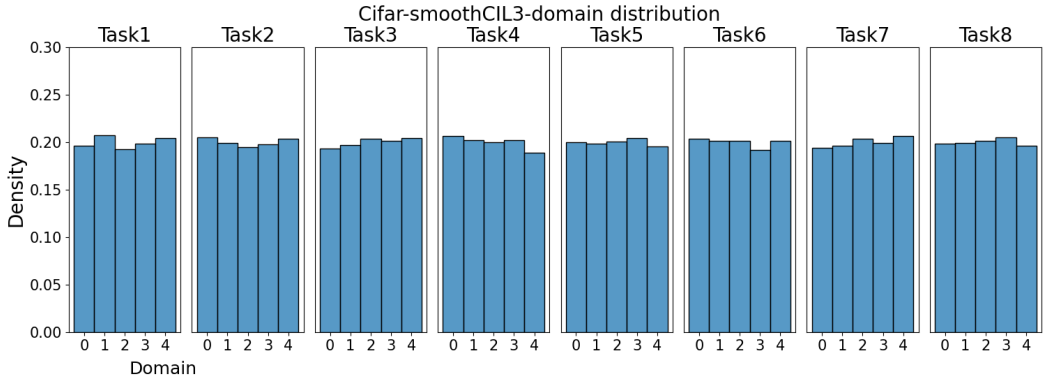

Figure 32. The class distribution of different tasks for Cifar100's smooth-CIL3