

Adversarial Domain Adaptation with Domain Mixup

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Abstract—Recent works on domain adaptation reveal the effectiveness of adversarial learning on filling the discrepancy between source and target domains. However, two common limitations exist in current adversarial-learning-based methods. First, samples from two domains alone are not sufficient to ensure domain-invariance at most part of latent space. Second, the domain discriminator involved in these methods can only judge real or fake with the guidance of hard label, while it is more reasonable to use soft scores to evaluate the generated images or features, *i.e.*, to fully utilize the inter-domain information. In this paper, we present adversarial domain adaptation with domain mixup (DM-ADA), which guarantees domain-invariance in a more continuous latent space and guides the domain discriminator in judging samples' difference relative to source and target domains. Domain mixup is jointly conducted on pixel and feature level to improve the robustness of models. Extensive experiments prove that the proposed approach can achieve superior performance on tasks with various degrees of domain shift and data complexity.

Index Terms—Domain Adaptation, semantic segmentation, object recognition

I. INTRODUCTION

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REFERENCES

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