

**CHENNAI – PONDICHERRY**

**Webly-supervised Fine-grained Visual Categorization via Deep Domain Adaptation**

**Abstract**

Learning visual representations from web data has recently attracted attention for object recognition. Previous studies have mainly focused on overcoming label noise and data bias and have shown promising results by learning directly from web data. However, we argue that it might be better to transfer knowledge from existing human labeling resources to improve performance at nearly no additional cost. In this paper, we propose a new semi-supervised method for learning via web data. Our method has the unique design of exploiting strong supervision, i.e., in addition to standard image-level labels, our method also utilizes detailed annotations including object bounding boxes and part landmarks. By transferring as much knowledge as possible from existing strongly supervised datasets to weakly supervised web images, our method can benefit from sophisticated object recognition algorithms and overcome several typical problems found in webly-supervised learning. We consider the problem of fine-grained visual categorization, in which existing training resources are scarce, as our main research objective. Comprehensive experimentation and extensive analysis demonstrate encouraging performance of the proposed approach, which, at the same time, delivers a new pipeline for finegrained visual categorization that is likely to be highly effective for real-world applications.