Open-Set Domain Adaptation through Self-Supervision

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Abstract

- sentence describing the problem - sentence describing our proposed method - sentence summarising the results - sentence about the variations - sentence about the variation results

1. Introduction

In the computer vision research area large amounts of unlabeled data are available, however the cost of labelling this data is high [2]. Domain adaptation is one technique that can be used to exploit the unlabeled data by first training a model on labeled data from a different but similar domain (the *source* domain), and then applying this model to the unlabeled data (the *target* domain). This technique assumes the distribution of both source and target domans are similar and describe the same class labels, also known as the *closed-set* scenario [1]. When applied to real-word scenarios however it is possible that the target domain includes previously unseen classes, known as the *open-set* scenario. These extra class labels in the target domain will cause performance degradation of the classification model and should be identified and isolated. The problem thus consists of two steps: first separating the target domain into known and unknown samples; then conducting domain alignment between the source domain and the known samples of the target domain.

Self-supervised learning can be used to separate the known class samples in the target domain from the unknown samples. Self-supervised learning involves using known ...

- Introduce the problem - state our focus - the network used - the dataset used - introduce the variations we will implement

2. Related Work

- what's been done in the past on this topic - Summarise each of the cited references - Cite some papers about the variations we did - other variations which might be interesting (but that we didnt do) - if space -

3. Method

- describe in detail the method used - include the diagrams here and explain them - explain the evaluation parameters that will be used

4. Experiments

- start with parameter tuning of learning rate and epochs, include graph to justify decision - ablation study: hyperparameter tuning of weights and threshold value, include graphs or tables of values

5. Variations

- describe each of the variations - present results of the performance of the model and compare with the baseline for each of the variations

6. Conclusions

- summarise the results - add future recommendations

6.1. Acknowledgements

References

[1] Silvia Bucci, Mohammad Reza Loghmani, and Tatiana Tommasi. On the effectiveness of image rotation for open set domain adaptation. In *CVPR*, 2020. 1

[2] Gabriela Csurka. Domain adaptation for visual applications: A comprehensive survey. In *CVPR*, 2017. 1