WEAKLY SUPERVISED CLUSTERING BY EXPLOITING UNIQUE CLASS COUNT

INTRODUCTION

The paper proposed a Multiple Instance Learning (MIL) task that utilized a novel weakly supervised clustering architecture based on the Unique Class Count (UCC). The architecture is composed of two key components: (1) A neural network-based model and (2) a clustering framework. The neural net model is given a supervised training at the bag level of the instances where it adjusts its weights to birth a trained model. The trained model is then transferred to the pixel level (within the bags) to cluster the features contained therein and thus generate what is known as a mask since there is no explicit labels provided. The research also proved theoretically and showed graphically the performance of the novel architecture against two already existing models; the K-means and Olaf’s fully supervised U-net. The model comparable to the U-net model as revealed by the Camelyon dataset experiment.

One distinct feature of the proposed model is the addition of a kernel density estimator at the tail end instead of a pooling layer. This makes the input from the preceding layer permutation invariant.

COMMENTS

1. The paper failed to provide a clear diagram of the proposed model architecture.

RECOMMENDATIONS